

VIII. Slide Peak LSR

A. General Description of LSR

This portion of the document describes the vegetation, wildlife, aquatic resources and human uses associated with this LSR.

1. Vegetation

This section describes the current condition of vegetation groups within the Slide Peak LSR. Data was derived from aerial photo interpretation. It should be noted that site-specific information regarding vegetation structure and distribution will need to be updated, as restoration projects are initiated. The idea would be to use the vegetation layer derived for this analysis as a starting point only.

Additional vegetation information can be found in the 25 Mile/First Creek Watershed Assessment and the draft Slide Peak LSR Management Assessment (on file at the Chelan RD). Refer to the draft LSR assessment for a more complete description of vegetation within the LSR; the descriptions are abbreviated here.

a) Vegetation Group Information Unique to this LSR

(1) Dry Forest Group and Grassland/Shrubland

Eighty-eight percent (1,462 acres) of the Slide Peak LSR consists of the dry forest group (Fig. ?). Within this group, 10 percent (4,509 acres) of the Slide Peak LSR is mapped as high density and 36 percent (533 acres) is mapped as created openings (Appendix 4). Created openings are largely the result of the Tyee Fire. Approximately 54 percent (783 acres) of the forest group is mapped as low density. This low density structure may or may not meet the DEC described in Chapter VII (see discussion of this forest group in Chapter II).

Within this forest group, the ponderosa pine series is limited within the LSR. In some locations, ponderosa pine exists as the sole overstory dominate, but more often is co-dominant with Douglas-fir. Shrub composition in the understory is dominated almost exclusively by *Purshia tridentata* (25 Mile/First Creek Watershed Assessment, on file at the Chelan RD).

Grassland or shrubland vegetation was not identified in the mapping effort (Appendix 4).

(2) Mesic Forest Sites (Embedded within the Dry Forest Group)

Mesic sites within the Slide Peak LSR account for 12 percent (196 acres) of the vegetation mapped. In general, mesic sites occur on steep (>40 percent slopes), northerly aspects, riparian areas, or moist benches within the dry forest group (see Vegetative Landscape section, Chapter II).

Mesic sites are typically within the Douglas-fir series and include the more moist plant associations. Ponderosa pine may be present, but only as remnants from early seral establishment. The understory tends to be more lush, often with a higher shrub component than in the more dry plant associations within the Douglas-fir and ponderosa series. Understory species include *Symphoricarpos albus*, *Arctostaphylos uva-ursi*, *Spiraea betulifolia*, *Pachistima myrsinites*, *Sheperdia canadensis*, *Carex concinnoides*, *Festuca occidentalis*, *Carex geyeri*, and *Calamagrostis rubescens* (25 Mile/First Creek Watershed Assessment, on file at the Chelan RD).

(3) Moist Grand Fir Group

This forest group does not exist within the Slide Peak LSR.

(4) Wet Forest Group

This forest group does not exist within the Slide Peak LSR.

(5) Subalpine Fir Series

This forest group does not exist within the Slide Peak LSR.

(6) Whitebark Pine/Subalpine Larch Group and High Elevation Nonforest Types

This forest group does not exist within the Slide Peak LSR.

(7) Non-Forest Vegetation

Non-forest vegetation types were not identified within the Slide Peak LSR.

(8) Species with Special Status

Within the Slide Peak LSR, there is potential habitat for a number of special status species, but few surveys have been carried out to determine presence or absence. Surveys should be carried out in conjunction with restoration projects, as well as surveys independent of other activities. It is important that species ranges are known so that better estimates of species viability can be assessed. In addition, little is known about most special status species habitat and biological requirements, and inventories provide a first and necessary step in obtaining this information.

There are no known Forest Service sensitive (see Late-Successional Associated Plant Species, Chapter IV) species within the Slide Peak LSR (Appendix 6). Several species, however, are suspected to occur within the LSR (Table ?). *Astragalus arrectus*, *Cypripedium fasciculatum*, *Cryptogramma stelleri*, *Githopsis specularioides*, *Hackelia hispida* var. *disjuncta*, *Pellaea brachyptera*, and *Orobanche pinorum*.

Cypripedium fasciculatum has been the focus of a number of research and monitoring projects over the past four years on the Leavenworth Ranger District. Project include pollination ecology, seed dispersal, habitat characteristics, seed germination, electrophoresis, and fire ecology.

Orobanche pinorum is an achlorophyllus plant and obligate root parasite of *Holodiscus discolor*. Aerial stems are annual developing from a haustorial tubercle. From each stem, 50-150 flowers are produced in late June or early July. The species is facultatively autogamous and it apparently only reproduces by seed (Ellis et al. 1994).

Orobanche pinorum is often found in *Pseudotsuga menziesii* dry forest associations with incomplete upper canopies between 460 and 1220 meters in elevation (Harrod et al. in press). These sites have scattered herb and low shrub understories, and a tall shrub layer dominated by its host, *H. discolor*.

There are no known survey and manage plant species within the Slide Peak LSR. There are several vascular plant species suspected to occur in the LSR, but non-vascular plants are simply unknown (Appendix 7). The ROD provides standards and guidelines for survey and manage species, and these should be addressed within the Slide Peak LSR when restoration projects are implemented.

Few if any surveys have been carried out for non-vascular and vascular plants. Surveys should be a priority project within the Slide Peak LSR.

(9) Noxious Weeds

The Slide Peak LSR has not been formally surveyed for noxious weeds species. *Centaurea diffusa* is known to occur near Slide Peak. Surveys for species presence and extent should be completed in order to develop a noxious management plan for this LSR (refer to Harrod 1994).

2. Late Successional Associated Wildlife Species

a) Introduction

In this chapter, information is presented about wildlife species that are associated with the late-successional habitats that are either present or would be managed for in the Slide Peak LSR. A total of 80 species have been identified as being associated with these kinds of forest conditions and are present, unknown or suspected to occur within the LSR. The list of these species can be found in Appendix 27.

In addition to consideration for the groups of species associated with the various kinds of late-successional forests, individual species assessments were also conducted. These assessments were completed for all threatened, endangered, sensitive, species of concern (USFWS), management indicator, protection and buffer, and survey and manage species. Collectively this group of species is referred to as species of special status. What information is available about the status of these species within the Slide Peak LSR is summarized in this chapter. However, relatively little is known about a number of them.

Inventories or surveys have been conducted for only a few of the wildlife as shown in Appendix 27. The most extensive of these were for gray wolves. Northern spotted owl inventories have been conducted over about 10% of the suitable habitat within the LSR.

b) Late Successional Species By Habitat Type

(1) Dry Forests

About 1,462 acres (88%) of the Slide Peak LSR is composed of the dry forest vegetation group. Fire climax ponderosa pine forests historically dominated these areas and 49 wildlife species are associated with these forests.

Currently, 145 acres (10%) of the dry forest is in a successional advanced condition. About 783 acres are in a low density condition and could be fire-climax.

Some species that are associated with the late successional or fire-climax conditions of these forests and that have special management status include: tailed frog, larch mountain salamander, northern goshawk, bald eagle, flammulated owl, pileated woodpecker, hairy woodpecker, white-headed woodpecker, black-backed woodpecker, Williamson's sapsucker, northern flicker, chestnut backed chickadee, pygmy nuthatch, elk, long-legged myotis, long-eared myotis, silver haired bat, fringed myotis, western big-eared bat, pallid bat, marten, and fisher.

Historically, only a minor portion of these areas provided the structures that are associated with suitable spotted owl habitat (Thomas et al. 1990, Buchanan et al. 1995). No spotted owl activity centers are known to occur in the Dry Forest portions of the Slide Peak LSR.

(2) Mesic Sites Within the Dry Forest

The mesic forest group covers about 196 acres (12%) of this LSR. Mesic sites within the dry forests provide important wildlife habitat and add diversity across the landscape.

Historically, fire occurred less frequently at these sites (refer to the Disturbance Chapter in the Forest-wide Assessment) allowing for succession that resulted in more complex forest structure such as a higher canopy closure, multilayering, snags and down logs. These forests occurred in a variety of successional stages across the landscape. The late-successional conditions of these Mesic Forests provide habitat for about 66 wildlife species. The high potential for future fires presents a concern about the sustainability of these forests.

Wildlife species that occur in these habitats and are of special management status include: tailed frog, Cascades frog, larch mountain salamander, northern goshawk, bald eagle, northern spotted owl, great gray owl, flammulated owl, pileated woodpecker, downy woodpecker, hairy woodpecker, white-headed woodpecker, black-backed woodpecker, three-toed woodpecker, red-breasted sapsucker, Williamson's sapsucker, northern flicker, little willow flycatcher, olive-sided flycatcher, chestnut-backed chickadee, pygmy nuthatch, elk, long-legged myotis, long-eared myotis, fringed myotis, Yuma myotis, western big-eared bat, silverhaired bat, pallid bat, marten, and fisher.

This forested vegetation group is capable of providing habitat structure that typically composes spotted owl nesting, roosting, foraging and dispersal habitat, while remaining within the historic range of variability.

c) Species Specific Information

The information presented in this section provides an overview of what is known about the species identified in Appendix 27 as species of special status. Information is provided on a species by species basis whenever it is available.

(1) Endangered Or Threatened Wildlife Species

There are five wildlife species that are federally listed as Threatened or Endangered and could occur within the Slide Peak LSR. These include the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), northern spotted owl (*Strix occidentalis caurina*), grizzly bear (*Ursus arctos*), and gray wolf (*Canis lupus*).

The bald eagle is known to occur within the Slide Peak LSR and about 5% of the available habitat has been surveyed. A portion of this LSR is located within a Bald Eagle Recovery Territory. There are unconfirmed sightings of peregrine falcons within the LSR and 10% of their habitat has been surveyed.

(a) Northern Spotted Owls

There are no spotted owl activity centers utilizing habitat in the Slide Peak LSR. This is the only LSR/MLSA on the Forest that is not associated with spotted owls. The Slide Peak LSR is very isolated on the extreme eastern edge of the range for the Northern Spotted Owl. The nearest known spotted owl site is 3 miles to the northwest (Shady Pass LSR), across previously burned open forest. Additional owls are 14 miles to the west and 19 miles to the southwest (Chiwawa LSR). Connectivity to these sites are across naturally fragmented, open forest and shrub-steppe habitat. The Slide Peak LSR was established for the dry forest type habitat, that would benefit flammulated owl, pygmy nuthatch and white-headed woodpecker.

The Slide Peak LSR is not expected to support spotted owls, currently or in the long-term (50 years). There are 258 acres (16%) of spotted owl habitat for nesting/roosting and foraging within the LSR, see Table ? There is potential for 341 acres (21%) in the LSR. Potential spotted owl habitat in the wetter forest groups (wet, moist and some multi-layered subalpine fir forests) account for 0% of the LSR, no habitat is sustainable over time (see appendix 13 and appendix 4

& 5). Within the Slide Peak LSR, 10% of the spotted owl habitat has been surveyed for spotted owls.

Table VIII-1, Spotted Owl Habitat, Potential Habitat, and Sustainable Habitat in LSRs/MLSAs.

LSR or MLSA	1996 Known Pairs & Singles	CHU S.Owl Pair Goals	Existing Suitable Spotted Owl Habitat			Potential SSOH			Sustainable SSOH			% For- est Inter- ior
			Acres	Thre shold Pairs	Target Pairs	Acres	Thres hold Pairs	Target Pairs	Acres	Thres hold Pairs	Targ et Pair	
Slide Peak RW 137	0	--	258	0.1	X	341	0.1	X	0	0	X	0%
Shady Pass RW 136	5 sites + 1 ¹	5 Pairs	42224 SAF	15.8	X	51642 SAF	19.4	X	38898 SAF	14.6	X	31%

¹ Spotted owl activity center within 1/4 mile of LSR/MLSA boundary.

There are no known spotted owl activity centers in the Slide Peak LSR (see the following table for more information).

Table - VIII-2, Spotted Owl Information for Slide Peak LSR

Spotted Owl	Repro Status ³	Owner ship ⁴	Dry or Wetter Owl ⁵	Threshold ⁶	Critical Habitat Unit (CHU)	Forest Interior? ⁸	Existing SSOH 1.8 mi Radius & 0.7 mi R ¹⁰	Activity Center 100 Ac ¹¹	Total Dispersal Habitat ⁹
NONE					None				
Historic s.owls									

¹ Activity Center is Near the LSR or MLSA, but not inside the LSR or MLSA map boundary (< 1/4 mile).

³ RS = Residential Single; P = Pair; PY = Pair with Young, based on highest Reproductive occupancy. (HS = Historical Single)

⁴ FS = Forest Service; PVT = Private Ownership (ownership at activity center).

⁵ If the majority of suitable spotted owl habitat in 0.7 mile circle is dry or mesic forest groups, then it is a "dry" spotted owl. If the majority is wetter forest groups, then it is a "wetter" spotted owl.

⁶ **Below Threshold:** < 2,663 total suitable spotted owl habitat acres in 1.8 mile circle **OR** < 500 total suitable spotted owl habitat acres in 0.7 mile circle.

At Threshold: 2,663-3,994 total suitable spotted owl habitat acres in 1.8 mile circle.

Optimum/Target: > 3,994 total suitable spotted owl habitat acres in 1.8 mile circle.

⁷ The activity center is within 1/2 mile of the CHU.

⁸ **Inside** = activity center is at least 600' inside (forest interior) late successional habitat.

Near = activity center is inside late successional habitat that creates a forest interior.

⁹ **Dispersal Habitat** within 1.8 mile circle around activity center. **Dry** dispersal habitat includes vegetation codes 11, 13, and 52; **mesic** dispersal includes code 21; and **wet** dispersal includes codes 31, 35, 61, and 41.

¹⁰ **SSOH Habitat** within 1.8 mile radius (home range) and 0.7 mile radius (Core Area). **Dry suitable spotted owl habitat** includes vegetation code 12 where size/structure is multistory greater than 9" DBH; **mesic** Suitable includes code 22; and **wetter** Suitable includes codes 32, 36, 62, 64, and 42 (see appendix 2 GIS Veg Model & appendix 3 Veg Photo Mapping Key). Use the highest quality habitat available.

¹¹ A larger circle than 1/3 mile radius will be used to develop **100 Acre Activity Center**, if there is less than 100 acres of suitable habitat.

(b) Critical Habitat Unit for Northern Spotted Owls

There is no Critical Habitat Unit (CHU) for spotted owls within the Slide Peak LSR. The nearest CHUs are WA-5 (Entiat River CHU) and WA-4 (Twenty-five Mile CHU), both part of the Shady Pass LSR, (see appendix 13 LSR/MLSA S.Owl Acreage's and Appendix 34 CHU Maps). For the Critical Habitat Unit process, the Slide Peak LSR area was not identified as an important connectivity/dispersal area for spotted owls. The Slide Peak LSR does not provide connectivity between CHUs for spotted owls.

(c) Grizzly Bear and Gray Wolf

No class 1 grizzly bear observations have been made within the Slide Peak LSR, however, class 1 observations have been reported nearby (Almack et al. 1993). It is unknown if grizzly bears occur within the LSR and about 10% of their available habitat has been surveyed. Gray wolves are suspected to occur within the LSR and about 80% of their habitat has been surveyed. In addition, confirmed wolf locations have been made to the north of this area (Gaines et al. 1995).

(d) Marbled Murrelet

The Slide Peak LSR does not include any Marbled Murrelet habitat, it is well outside the marine foraging zone.

(2) Sensitive Species and Species of Concern

There are 15 wildlife species that are on the R6 Sensitive Species list or are USFWS species of concern that could occur within the Slide Peak LSR. These include the goshawk (*Accipiter gentilis*), willow flycatcher (*Empidonax trailii*), olive-sided flycatcher (*Contopus borealis*), tailed frog (*Ascaphus trueii*), spotted frog (*Rana pretiosa*), Cascade frog (*Rana cascadae*), Columbia pebblesnail (*Fluminicola columbiana*), long-legged myotis (*Myotis volans*), long-eared myotis (*Myotis evotis*), fringed myotis (*Myotis thysanoides*), Yuma myotis (*Myotis yumanensis*), Western big-eared bat (*Plecotus townsendii*), lynx (*Lynx canadensis*), fisher (*Martes pennanti*), and wolverine (*Gulo gulo*).

(a) Birds

The goshawk is known to occur and surveys have not been completed. It is unknown if the little willow flycatcher and the olive-sided flycatcher occur. No surveys have been completed.

(b) Amphibians

Surveys for amphibians have not been completed within the Slide Peak LSR. It is suspected that the tailed frog occurs in the LSR, and unknown if the spotted frog and Cascade's frog occur in the LSR.

(c) Mollusks

No surveys for the Columbia pebblesnail have been conducted and it is unknown if they are present.

(d) Mammals

Surveys for bat species have not been completed. It is unknown if the long-legged myotis, long-eared myotis, fringed myotis, Yuma myotis or the western big-eared bat occur in the Slide Peak LSR.

Surveys for lynx, wolverine and fisher have not been conducted. All three are suspected to occur in the LSR.

(3) Management Indicator Species

There are 12 wildlife species that are listed as management indicator species that occur or could occur within the Slide Peak LSR. These species include the pileated woodpecker (*Dryocopus pileatus*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Picoides villosus*), three-toed woodpecker (*Picoides tridactylus*), red-breasted sapsucker (*Sphyrapicus ruber*), Williamson's sapsucker (*Sphyrapicus thyroideus*), northern flicker (*Colaptes auratus*), ruffed grouse (*Bonasa umbellus*), mule deer (*Odocoileus hemionus*), elk (*Cervus elephus*), and marten (*Martes americana*).

(4) Primary Cavity Excavators

No formal surveys for primary cavity excavators have been completed. The pileated woodpecker, hairy woodpecker and northern flicker are known to occur within the LSR and the remaining MIS primary cavity excavators are suspected or it is unknown if they occur.

(a) Ruffed Grouse and Beaver

No surveys for the ruffed grouse have been completed and they are suspected to occur in the LSR. Beavers are considered to be absent from this LSR.

(b) Mule Deer, Elk

Surveys for mule deer have covered about 5% of the available habitat and they are known to occur within the LSR. Surveys for elk have not been conducted and they are suspected to occur.

(c) Marten

Marten are suspected to occur in the LSR and no surveys have been completed.

(5) Survey And Manage, Protection And Buffer Species

There are eight species that do or could occur within the Slide Peak LSR and are identified as survey and manage, or protection and buffer species. These include the great gray owl (*Strix nebulosa*), flammulated owl (*Otis flammeolus*), White-headed woodpecker (*Picoides albolarvatus*), black-backed woodpecker (*Picoides arcticus*), pygmy nuthatch (*Sitta pygmaea*), warty jumping slug (*Hemphillia glandulosa*), blue-gray tail-dropper (*Prophyaon coeruleum*), papillose tail-dropper (*Prophyaon dubium*) and Chelan Mountain Snail (*Oreohelix spp.*).

(a) Birds

It is unknown if the great gray owl occurs within the Slide Peak LSR and surveys have not been completed. No surveys have been completed for the flammulated owl, white-headed woodpecker, black-backed woodpecker, or pygmy nuthatch has been completed. The pygmy nuthatch and flammulated owl are suspected to occur in the LSR. The black-backed woodpecker is known to occur in the Slide Peak LSR.

(b) Mollusks

It is unknown if the warty jumping slug, Chelan Mtn. snail, blue-gray tail-dropper, or papillose tail-dropper occur in the LSR and no surveys have been completed. The Chelan Mountain snail has been collected from the lower portions of Granite Slide area adjacent to this LSR.

(c) Habitat Effectiveness

Habitat effectiveness was measured using the current open road density and the amount of security habitat. The current open road density within the LSR is 0.1 mi./sq.mi. and the amount of area in security habitat is 81%. This information shows that habitat effectiveness is considered to be "high" (<1 mi./sq.mi.) relative to roads and "high" relative to security habitat (>70%). The long term management objective for LSR/MLSAs is to manage towards a "high" level of habitat effectiveness defined as >1mi./sq.mi. open road density and >70% security habitat.

3. Human Uses

a) Overview

The Slide Peak is a small LSR, with limited road access and steep terrain. There is little known about prehistorical use of this LSR and very little historical use. The LSR has no developed recreation facilities. Recreational use of the area includes some dispersed camping, primarily by hunters, and driving the ridge road for scenery. Some snowmobile use occurs on the Slide Peak Road during winter months.

B. Analysis Between the LSR**1. Sustainability**

a) Sustainability Analysis

The sustainability of LSRs/MLSAs across the Forest is displayed in Table 19, *Vegetation Hazard and Ignition Risk Ratings* of the "Forest-wide Assessment for Late Successional Reserves and Managed Late Successional Areas, Wenatchee National Forest". The Slide Peak LSR falls in the lower one-third of all LSRs/MLSAs in terms of the amount of at-risk vegetation and the degree to which its current vegetative conditions are sustainable into the future. All of the Slide Peak LSR burned in the 1994 Tyee fire, most of it in a stand replacement fashion, and consequently most of the vegetation in this LSR is now in an early successional condition and not at risk of burning in the near term. A portion, however, did not burn intensely enough to appreciably change the structure from a dense successional advanced condition, and is still at risk of burning. This portion constitutes 341 acres or 21% of the LSR.

An important consideration in terms of sustainability is the relationship of the Slide Peak LSR to neighboring LSRs. Three LSRs (Sawtooth, Shady Pass and Chiwawa) are, for the purposes of this analysis, considered to be neighbors. In terms of overall sustainability, Slide Peak ranks higher than all three of its neighbors. The following table shows the acres at risk and the ignition risk determined in the Forest-wide sustainability analysis for Slide Peak and its three neighboring LSRs.

Table VIII-3, Acres at Risk and Ignition Risk, Slide Peak LSR.

LSR/MLSA	% of LSR/MLSA at Risk	% of LS Forest at Risk	Ignition Risk

	Acres	Pct.	Acres	Pct.	
Shady Pass	31,142ac	41%	31,044ac	69%	Moderate
Slide Peak	341ac	21%	341ac	100%	High
Sawtooth	2,334ac	15%	2,331ac	97%	Moderate
Chiwawa	29,042ac	27%	21,345ac	38%	Moderate

When looking at sustainability issues between LSRs/MLSAs, the factor driving this analysis is the amount and location of at-risk vegetation between the Slide Peak LSR and its three neighbors. In other words, identifying linkages in at-risk vegetation that would facilitate the spread of fire from one LSR/MLSA to another. A review of at-risk vegetation maps reveals that this linkage does not exist between the Slide Peak and Sawtooth LSRs, due to the presence of Lake Chelan, which lies directly between the two.

Most of the at risk vegetation that did exist between Slide Peak and Shady Pass and Chiwawa LSRs burned in the Tyee fire. This fire covered the entire 15 mile distance between Slide Peak and Chiwawa, starting from a lightning ignition between the two LSRs and spreading both directions into each LSR. Much of this at risk vegetation was in a dense successional advanced condition at the time that it burned. The Tyee fire essentially turned an unnaturally high live fuel condition into an unnaturally high dead fuel condition. These areas between Slide Peak and both the Chiwawa and Shady Pass LSRs with unnaturally high dead fuel conditions will likely pose a fire threat to the few remaining stands in Slide Peak that still have late successional attributes as these dead fuels fall to the ground.

(1) Implications

Treat dead fuel concentrations in areas that were in a dense successional advanced condition prior to the Tyee fire, or other areas where dead fuel accumulations pose a threat to the remaining late successional habitat in the LSR. Techniques such as salvage or other non-commercial fuel treatments are appropriate.

2. Forest-Wide Northern Spotted Owl

The Slide Peak LSR is not designated as one of the Forest's three large population cluster/source center LSRs, for the recovery of the spotted owl. The Slide Peak LSR is the only LSR/MLSA that is NOT part of the spotted owl linkage to the metapopulations through dispersing individuals (See Figures 1 and 2 with LSR and MLSA maps in the Forest-wide Assessment).

3. Connectivity (Plant, Wildlife, and Northern Spotted Owl)

a) Plant Connectivity

Connectivity can be addressed at several spatial scales when assessing an individual LSR. Connectivity of the LSR'S/MLSA network on the Wenatchee National Forest has been addressed above in Chapter VII and in Appendix 1. Vascular plant connectivity with surrounding LSRs or MLSAs is analyzed in this section (Table VIII-4). Refer to Forest-wide Assessment discussions for connectivity descriptions of lichens, bryophytes and fungi.

Connectivity in the dry/mesic vegetation group to the Sawtooth LSR does not exist for any dispersal class of species; the distance is just too great. Relative to the Shady Pass LSR, connectivity exists for all dispersal classes of the dry forest group. Moderate and high dispersal species are dependent on vegetation between Slide Peak and Chiwawa LSR. No connectivity for low dispersal species exists with the Chiwawa LSR.

No other vegetation type occurs within the Slide Peak LSR.

No restoration projects were identified as a result of this analysis.

(1) Slide Peak Vascular Plant Connectivity

Table VIII-4, Slide Peak - Vascular Plant Connectivity

LSR/MLSA	Vegetation Group								
	Dry/Mesic			Moist GF			Subalpine		
Dispersal Class	1	2	3	1	2	3	1	2	3
Sawtooth	N	N	N				N	N	N
Shady Pass	Y	Y	Y				N	D	Y
Chiwawa	N	D	D				N	D	D

Dispersal Codes = Y=Yes (Connectivity); N=No (Not Connected); A=Veg Group Absent; D=Dependent (Connectivity Depends on Outside Habitat)

b) Wildlife Connectivity

Connectivity between late-successional patches is important to providing movement between patches, minimizing local extinctions, and reducing genetic isolation (Harris 1984, Noss and Harris 1986). In order to assess connectivity between the Slide Peak LSR and adjacent LSR/MLSAs the dispersion index was used (as described in Appendix ?). One potential linkage was evaluated: First Creek to Shady Pass. The dispersion index for this linkage was rated at a 2.

Table VIII-5, Dispersion Indices for the Slide Peak LSR.

Linkage	Distance(Miles)	High	Moderate	Low	Index
Slide Peak-Shady Pass	3	Yes	No	No	1

The riparian reserves that lie between the Shady Pass LSR and Slide Peak LSR could provide for some connectivity for moderate and high mobility species in the future. Currently, Slide Peak is isolated from other LSRs for species that are ranked as moderate and low mobility.

c) Northern Spotted Owl Connectivity

The Slide Peak LSR was established for dry forest fire climax species. The Slide Peak LSR does not provide connectivity between LSRs on the Wenatchee National Forest. It is very isolated and has drier habitat, dispersal habitat does exist, but is limited in connectivity to other LSR/MLSAs. There is no spotted owl pair goal for this LSR.

Table VIII-6, Connectivity Between LSRs: Spotted Owl Pair Goals for LSRs and MLSAs, and CHUs.

LSR or MLSA Status and Connectivity	S.Owl Pairs --1994, FSEIS Appendix G, Table G-3	Highest Occupancy and Reproductive Status, for Field Seasons 1995 ---- 1996		Number of Owl Pairs CHU Should Support, as per USFWS - CHU discussion.	
Sawtooth RW 139,	0 - WNF	0	0	--	NA

LSR or MLSA Status and Connectivity	S.Owl Pairs --1994, FSEIS Appendix G, Table G-3	Highest Occupancy and Reproductive Status, for Field Seasons 1995 ---- 1996		Number of Owl Pairs CHU Should Support, as per USFWS - CHU discussion.	
22% Wen. NF					
Slide Peak RW 137	0	0	0	--	NA
Shady Pass RW136	4 Pairs	4 Pairs	5 sites + 1 ¹	5 Pairs	WA-5 (3pr) WA-4 (2pr)
Chiwawa RW 135	11 Pairs + 1 Res Single	16 Pairs + 3 Res Singles	18 + 1 ¹ (7 Sites*)	21+ Pairs	WA-6

¹ Spotted owl activity center within 1/4 mile of LSR/MLSA boundary.

* S.owl activity center may have been lost, due to 1994 Chelan Forest Fires, monitoring still underway.

Objectives in the Slide Peak LSR should protect and enhance conditions of late successional and old growth forest ecosystems, while serving as habitat for late successional forest related species (NWFP A-4, 1994).

The three nearest LSR/MLSAs were evaluated to determine their potential for dispersal to occur. This analysis showed that most of owl habitat adjoins Slide Peak area and the First Creek area. Utilization of these sites by spotted owls is unlikely. The LSR has very little habitat to contribute towards spotted owls, in part due to the 1994 wild fires, as well as inherently dry open forest type. Slide Peak is not considered a connectivity for spotted owls between Chiwawa, Shady Pass and Sawtooth LSRs. See Forest Interior Map and Suitable Spotted Owl Habitat Maps.

(1) Restoration Opportunities And Potential Projects Between LSRs

1. Protection of LSR Late successional habitat from outside from fires.
2. Validate assumption that connectivity to/from Slide Peak LSR does not exist for spotted owls.

C. Analysis Within the LSR

1. Unique Habitats And Species

The following is the discussion and results of the Unique Habitat and Species module for the Slide Peak LSR. For more information see Unique Habitats Maps, Unique Habitats and Species Table (or Appendix __), Forest Interior Map and Tables (appendix 19), Riparian Reserves Map, Road Density tables (appendix 20). For process see Unique Habitats and Species Module in Appendix 1 for order, explanations and process of modules.

a) Forest-wide Overview of Unique Habitats and Species

(1) Unique Ecosystems Landscape Analysis

Each LSR/MLSA is compared Forest-wide for unique habitats and species abundance, connectivity and function (see Forest-wide Assessment). The Slide Peak LSR has been severely burned as a result of the 1994 fires. The Slide Peak LSR is one of the smallest LSRs on the Forest. The only noted unique habitats are riparian reserves and dry forest late-successional

habitat. There are no records of other unique habitats such as talus/rock cliffs, shrub fields, meadows, wetlands, deciduous forest, shrubs, disjunct forest, or forest interior habitat. This LSR is comparatively lowest across the Forest LSR/MLSA's for habitat and species abundance, for connectivity for these habitats and species, and for function and process of unique habitats. Overall the Slide Peak LSR has 0% in non-forested vegetation types (water, wetlands, meadows, grass/shrub/natural openings and deciduous forest); 0% in Forest Interior habitat; 21% in Late Successional/Successionally Advanced; 19 wildlife late-successional associated species or species of Special Status; and 8 identified plants of late-successional associated species or species of special status.

This is the only LSR/MLSA without any influence of spotted owl, it is outside the range. There are 3 riparian areas, that are very important for plant and animal species that utilize dry forest types (Granite Falls Creek, a tributary of Granite Falls, and a tributary of First Creek - all of which may not flow water year round).

The Slide Peak LSR is not within any area of plant and animal rarity or endemism, as per Inter-Columbia River Basin Ecosystem Plan (Marcot et al, 1995 Draft).

Identified areas of high abundance, connectivity and function for unique habitats and species within the Slide Peak LSR are:

- **Granite Falls Creek:** Connectivity riparian reserve.
- **Slide Peak:** Late successional mesic forest habitat.
- **Headwaters 1st Creek Tributary:** Connectivity riparian reserve and late successional/fire climax dry forest habitat.

Each LSR/MLSA can be evaluated for bio-diversity, connectivity and function (see Function of Unique Habitats in the main body of the Forest-wide Assessment). Past management activities affect the function of unique habitats and species. This includes open roads, roading of riparian reserves, and past harvest activities. For the Slide Peak LSR: total open road density of 0.13 miles per square mile is the lowest on the Forest; security habitat of 81% is very high (one of the best on the Forest); roads and trails in riparian reserves of 0.0 miles per square mile is the lowest on the Forest; and past harvest activities are low amounts, yet the 1994 wildfires greatly effected this LSR.

(2) Abundance and Ecological Diversity

Forest-wide, the Slide Peak LSR has the lowest amounts of unique habitats and species abundance. This includes acreage for unique plant and animal habitats, juxtaposition of habitats, availability of wilderness or areas of rarity, and known observations from the plant and animal species list. There is 0% of the LSR in non-forested vegetation types. Actually there are some nonforested areas in upper granite creek but the modeling of vegetation within this area did not identify them. There are 15 wildlife species associated with late-successional habitat or Species of Special Status and 0 known plant species of special status or associated with late-successional habitat. To determine if unique habitats have been overlooked, the vegetation mapping, including unique habitats need to be validated.

(3) Connectivity for Unique Habitats and Species

This LSR is very isolated, providing low amounts of connectivity for unique habitats and species. This includes the amounts, percent and number of forest interior patches, late successional habitat patches, and the juxtaposition to wilderness and areas of rarity. Due to the Slide Peak LSR being isolated by open dry vegetation, past burns (1970's and 1994), it does not provide a high or moderate degree of connectivity. Species utilizing the habitat within are tied to the

specialized or unique habitats (dry forest, natural openings, riparian reserves). There is no adjacent Wilderness for linkage.

(4) Process and Function of Unique Habitats and Species

The LSR has a low degree of function for unique habitats and species, (however, few surveys have been conducted for Species of Special Status plants and animals). Function and process includes development and maintenance of unique ecosystems, including ecological values for unique species and populations. The plant and animal species list for known observations makes up a large part of this analysis, as well as lack of proximity to wilderness and areas of rarity, which sustain habitat function. (See Chapter VII, Forest-Wide Function of the Network for Unique Habitats and Species and the Forest-wide Unique Species and Habitats Table in Appendix 37).

b) Unique Habitats and Species Known Within LSR

(1) Unique Habitats and Species Site Specific Analysis

The following is a summary of the Unique Habitats and Species Module for Slide Peak LSR. For more information see Unique Habitats and Forest Interior Maps, Unique Habitats and Species Table (Appendix 37), Forest Interior Tables (Appendix 19), Riparian Reserves Map, Road Density tables (Appendix 20). For process see Unique Habitats and Species Module in Appendix 1 for order, explanations and process of modules.

Table VIII-7, Unique Habitats and Species Module Summary

	Slide Peak LSR
Riparian Reserves	Over-all 5% of LSR in riparian reserves, low amounts
	Streams (75 acres), possible Seeps.
	Any riparian vegetation is important to offset the amount of dry forest in this area.
Non-Forested Vegetation	0% (0 acres) of LSR/MLSA. * Note: ground truth the vegetation mapping, to locate unique habitats.
	Grass/Shrub/Natural Openings 0% (0 acres) and shrub fields 0% (0 acres).
	Wet Meadows 0 Acres, Subalpine Meadows 0 Acres.
	Rocks/Cliffs 0 Acres mapped.
Unique Forest Groups	Disjunct Forests - None identified.
	Forest Interior Habitat - 0% moist, 0% dry, 0% high elevation
	Late-successional Habitat - 0% moist; 21% dry/mesic (341 acres) Fire Climax/Successionally Advanced.
	Snags/Logs High short-term, Low long-term, from Landscape Level (see Snag sub-module).
Animal - Late Successional Associated Species and Species of	19 Species of Special Animals

	Slide Peak LSR
Special Status	
PETS - Animals	2 species: Bald Eagle, Peregrine falcon.
Survey & Manage and Protection & Buffer	2 species: White-headed woodpecker, Black-backed woodpecker.
Management Indicator Species (WNF)	5 species: Pileated Woodpecker, Primary Cavity Excavators, Bald Eagle, Mule Deer, Elk.
Other Animal Species of Special Status	Species of Concern: Goshawk
	Neotropical Migratory Birds: shrub fields.
	Late Successional Species: Barred owl, Hairy woodpecker, flicker, chestnut-backed chickadee, Golden eagle (may have a nest site).
	Significant Fish Populations:
Plants - Late Successional Associated Species and Species of Special Status	8 Species of Special Plants
PETS - Plants	0 species:
Survey & Manage and Protection and Buffer Plants	Fungi, Lichens, Vascular Plants unknown.
Other Plant Species of Special Status	Unknown
American Indian Uses	Traditional Use Sites: Unknown
	Vision Quest Sites: unknown
	Traditional Food Plants: unknown
	Food Gathering: Deer..

c) Restoration Opportunities and Potential Treatments
Uniques Within LSR:

- **Weeds (Knapweed, Dalmation Toadflax):**
 1. Reduce knapweed and dalmation toadflax spread from roads.
- **Roads:**
 2. Keep high levels of Security Habitat, low levels of Open Road densities, and low levels of roads/trails in riparian habitats.
- **Access:**
 3. Retain American Indian access to traditional use sites.

- **Habitat Improvement:**

4. In past burn areas, accelerate mesic forest towards late-successional habitat, and dry forest towards fire climax. Especially along Granite Falls Creek.

5. **Protect:**

6. Protect and enhance riparian areas, intermittent streams, and dispersal corridors in Riparian Reserves of Granite Falls Creek, tributaries and headwaters of First Creek tributary.
7. Protect/maintain/enhance/monitor PETS species;

- **Coordinate and/or Acquire:**

8. Coordinate reduction of noxious weeds with County weed board.

- **Monitor:**

9. Conduct surveys for unique species and habitats.
10. To determine if unique habitats have been overlooked, the vegetation mapping, including unique habitats need to be validated. This includes small patches of rock/talus, and nonforested vegetation.
11. Monitor potential golden eagle nest site.
12. Monitor and maintain connectivity corridors.
13. Survey & Manage prior to activities: Great Gray Owl, Lynx, Mollusks (Chelan Mountain snail) and other S&M or P&B species;
14. Survey & Manage prior to activities: fungi, lichen, bryophytes, vascular plants.
15. Follow PETS, Species of Concern, Species of Special Status guidelines in Biological Evaluations for projects.

d) **Snag/Log/Green Tree Recruitment Module**

The following is the discussion and results of the Snag/Log/Green Tree Recruitment sub-set module of the Unique Habitats module for the Slide Peak LSR. Over-all, the Slide Peak LSR has a high level of available snags in the short term, and a low level of future green tree recruitment snags and logs for the long-term. (See appendix 1 for order, explanations and process of modules.) Snag quality can be judged by a continual supply of tree structure in various stages of decay, size and species. This can be best provided in the moist and wet vegetation groups, areas with large amounts of late-successional habitat, areas with little fragmentation, areas with high amounts of forest interior, and areas with high functioning riparian reserves. (See "LSR/MLSA Snag/Downed Logs/Green Tree Recruitment Analysis", Appendix 38, Forest-wide Assessment)

Table --VIII-8--, Slide Peak LSR Snag Habitat Quality/Landscape Scale

HIGH QUALITY**Short-Term	MEDIUM QUALITY	LOW QUALITY**Long-Term
Moist & Wet Veg Groups 0%	Subalpine Fir & Mesic Veg 12%	Dry & Whitebark Veg 88%
>60% LS (non-dry) Habitat	15% - 60% LS Habitat	<15% LS Habitat 0%
80% - 100% LS (all) Habitat	40% - 80% LS/M Habitat	<40% LS/M Habitat

HIGH QUALITY**Short-Term	MEDIUM QUALITY	LOW QUALITY**Long-Term
		21%
> 30% Forest Interior (non-dry)	15% -29% Forest Int Non-dry	<15% Forest Interior Not Dry 0%
>10% Forest Interior Dry	5% - 9% Forest Interior Dry	< 5% Forest Interior Dry 0%
>16% in Riparian Reserves	10% to 16% in Riparian Reserves	<10% in Rip Res 5%
0 Mi/Sq Mi Any Rds in Rip Res 0.00 mi/sq/mi	0 to 1 Mi/Sq Mi Rds in Rip Res	> 1 Mi/Sq Mi Rd Rip Res
< 1 Mi/Sq Mi Open Roads 0.13 mi/sq/mi	1 Mi to 2.5 Mi/Sq Mi Roads	> 2.5 Mi/Sq Mi Roads
>70% Security Habitat 81%	50% to 70% Security Habitat	<50% Security Habitat
>10% Past Burns Provide Snags >10%		<10% Past Burns Provide Snags
>50% Insect/Pathogens (See Disturbance Section in this Chapter)	25% - 50% Insect/Pathogens 25-30%	< 25% Insect/Pathogens
<10% Past CC Harvest <10%	11% - 25% Past CC Harvest	>25% Past CC Harvest
<10% Past PC Harvest 0%	11% - 50% Past PC Harvest	>50% Past PC Harvest

(Percentages in bold indicate values for LSR)

* Denote quality of this LSR

(1) Restoration Opportunities And Potential Projects For Snags/Logs

1. Monitor for snag dependent species, and snag longevity, especially in the burn.
2. In past burn areas, accelerate mesic forest towards late-successional habitat, and dry forest towards fire climax. Especially along Granite Falls Creek.
3. Complete snag analysis on 40 acre grid.
4. Retain snags at high end of range and manage insects and disease at endemic levels.

e) Species with Special Status (Plant)

There are no known species with special status within the Slide Peak LSR. Therefore, the model can not be completed. There is potential habitat for a number of species with special status, but few surveys have been carried out to determine presence or absence. Plant surveys should be carried out in conjunction with restoration projects, as well as surveys independent of other activities. It is important that species ranges are known so that better estimates of species viability can be assessed. In addition, little is known about most species habitat and biological requirements, and inventories provide a first and necessary step in obtaining this information.

There are no known survey and manage plant species within the Slide Peak LSR (See Appendix 6 & 7). Although a few species are suspected, even more are simply unknown. The ROD provides standards and guidelines for survey and manage species.

2. Plant Connectivity

Connectivity can be addressed by analyzing the connectedness of habitats within the LSR. Within the Slide Peak LSR, the dry forest group is well connected. At this time, information is not available to complete this type of analysis for the Slide Peak LSR.

3. Wildlife Connectivity

The following is a result of applying the "within LSR/MLSA connectivity assessment process" to the Slide Peak LSR.

Table VIII-9, Connectivity Rankings for Slide Peak LSR.

Connectivity Variable	Dry	Mesic	RR	Overall
% Late-success or Fire Climax	L	H	L	L
Open Road Density	H	H	H	H
Security Habitat	H	H	H	H
Forest Interior Roads	H	H	L	H
% Forest Interior*	L	L	L	L

Currently, the availability of habitat in a late-successional or fire-climax condition is high in the Mesic Forests and low in the dry forests. Restoration projects that promote the development of fire-climax conditions would improve the connectivity in this forest group. The overall open road density and level of security habitat provides for a high level of connectivity. The percent of each vegetation type in a forest interior will improve over time unless a large-scale disturbance occurs. It should be noted that the ranking for this variable may never be high as a result of natural landscape fragmentation. The amount of habitat within a forest interior needs to be evaluated based upon the ecological capabilities of the site and sustainability on a site-specific basis. Site-specific analysis is also necessary to more adequately address connectivity for the less mobile species. This was not adequately addressed at the coarse/moderate filter approach used in this assessment.

(1) Restoration Opportunities

(a) Dry Forest Group

There is an opportunity to improve connectivity within the dry forest vegetation group through the implementation of thinning, and prescribed fires.

4. Disturbance Risk Analysis

Large portions of the Slide Peak LSR burned during the 1994 Tyee Fire. Where snag levels and post-fire mortality from insects is high, there is a correspondingly high potential for these areas to reburn. Most of the Slide Peak LSR (88%) is within the dry forest group, with the remaining 12% in layered, mature mesic forest. No wet forest types exist within this LSR.

Remnant trees and stands of pine and Douglas-fir are at elevated risk to bark beetles, especially Douglas-fir beetle, western pine beetle, *Ips*, and mountain pine beetle. Within and adjacent to burned areas, mortality of Douglas-fir from Douglas-fir beetles is expected to be high for at least

4 years following the fire. Areas adjacent to the burn that contain large Douglas-fir are also at risk from this insect, especially where these trees are infected by root diseases. Although the modeled vegetation maps do not so indicate, Slide Peak LSR contains areas of ageing lodgepole pine at risk to mountain pine beetle.

Mortality from biotic disturbance agents will be greatest where host continuity across the landscape is high and where there is overlapping moderate to high risk among two or more disturbance agents that act synergistically. Risk associated with biotic disturbance agents generally elevates the risk of catastrophic fires by potentially increasing fuel levels; this is especially true in the dry forest vegetation group and in vegetation upslope from or surrounded by dry forests.

Aerial surveys conducted by the Insect and Disease Group of Region 6 since the late 1940s indicate the following insect outbreaks occurring within the Shady Pass LSR:

- Mt. pine beetle (lodgepole pine): 1963
- Mt. pine beetle (ponderosa pine): 1974, 1986
- Mt. pine beetle (lodgepole pine): 1993
- Western spruce budworm: 1985

Susceptibility of the Slide Peak LSR to fires, insects, and pathogens is shown in the following table. Mortality from biotic disturbance agents will be greatest where host continuity across the landscape is high and where there is overlapping moderate to high risk among two or more disturbance agents that act synergistically. Risk associated with biotic disturbance agents generally elevates the risk of catastrophic fires by potentially increasing fuel levels; this is especially true in the dry forest vegetation group and in vegetation upslope from or surrounded by dry forests.

Table VIII-10, Disturbance Matrix, Slide Peak LSR

Veg Type	Fire	Dwarf Mistletoe		Root Decay			WSB	DFB	WPB	Total Risk
		PP	DF	AROS	HEAN	PHWE	WSB	DFB	WPB	
10	H	L	L	L	L	L	L	H	M	H
11	H	M	M	M	L	L	M	H	M	H
12	H	M	H	M	L	M	H	H	H	H
13	H	M	H	M	L	M	H	M	H	H
22	H	M	H	M	L	M	H	H	H	H

Key to Column Headings: PP = Ponderosa Pine, DF = Douglas-fir, WL = Western Larch, PIPO = Ponderosa Pine; PSME = Douglas-fir; LAOC = Western Larch; AROS = Armillaria root disease; HEAN = Annosus root disease; WPBR = White Pine Blister Rust; WSB = Western Spruce Budworm; DFB = Douglas-fir Beetle; MPB = Mountain Pine Beetle; WPB = Western Pine Beetle.

Key to Letters “-” = no risk; “L” = low risk, “M” = moderate risk, “H” = high risk

Veg Type codes: refer to Appendix 3, in the “Forest-wide Assessment for Late Successional Reserves and Managed Late Successional Areas, Wenatchee National Forest”.

The entire Slide Peak LSR is at high composite risk to disturbances, especially a reburn. Management objectives to reduce further risk of habitat loss to catastrophic wildfires, insects, and pathogens include removing snags and logs in excess of historic levels. This can be

accomplished by fuelwood collection or salvage logging, although post-fire deterioration of wood quality makes the latter infeasible in many instances.

5. Northern Spotted Owl

The following is the discussion and results of the within LSR Spotted Owl Module for the Slide Peak LSR. This module reviews the home range sites for spotted owls, as well as connectivity within the LSR/MLSAs. Appendix 1 further describes the order, explanations and process of modules, specifically the Northern Spotted Owl Module, Individual LSR/MLSA. See Suitable Spotted Owl/Dispersal Habitat and Activity Center map and tables, Forest Interior Map and tables, Riparian Reserve map and tables and Security Habitat map and tables for further information.

The recovery of the federally Threatened northern spotted owl is highlighted in management strategies within LSRs and MLSAs (See appendix 1 - Northern Spotted Owl Module, Individual LSR/MLSA). For the Slide Peak LSR this includes reducing the risk of habitat loss.

The Slide Peak LSR is completely in the dry forest groups (100%). The best quality suitable habitat for spotted owls occur near Slide Peak and at the headwaters of First Creek tributary. This drier forest LSR will be managed for risk and hazard reduction, over spotted owl habitat maintenance.

a) Suitable Spotted Owl Habitat

The amount of nesting/roosting/foraging habitat within the Slide Peak LSR is 258 acres (16% of the LSR). Of this, 0 acres (0%) are in wet, moist, and subalpine fir forests.

There is a potential for the LSR to reach 341 acres (21%) of suitable habitat. However, this potential habitat is in the drier forest groups, and not sustainable. There is no sustainable spotted owl habitat within this LSR. See Table VIII-1, Spotted Owl Habitat, Potential Habitat, and Sustainable Habitat in LSRs/MLSAs., which displays the number of potential owl pairs for the various scenarios.

Dispersal habitat currently is 862 acres, and is in the lower portions of the LSR, in the Granite Falls Creek area. (See Appendix 13 "Suitable Habitat Acreage's", Appendix 4 & 5 "Vegetation Acreage's", and Suitable Spotted Owl Habitat Maps).

Habitat analysis for the Slide Peak LSR is based on vegetation modeling, and a model of spotted owl habitat structure. The map and acreage's should be validated prior to project implementation..

This LSR/MLSA is part of the reserves that are predicted to provide the needs for spotted owl recovery over time (50+ years). Coupled with the LSR/MLSA management, riparian reserve function, Wilderness areas, and Unmapped LSRs, the needs of the spotted owl will be met. The reserves function for connectivity and spotted owl home ranges. With the exception of a few LSR/MLSAs that are not sustainable, it is concluded that the LSR/MLSA reserves on the Wenatchee National Forest meet the function of the CHU system, as intended in the NWFP (NWFP C-9). Monitoring and maintaining connections, as well as meeting LSR goals will be ongoing. (See Appendix 1, "Forest-wide Spotted Owl Module" and "Individual LSR/MLSA Spotted Owl Module")

b) Spotted Owl Home Ranges

There are no known spotted owls in the Slide Peak LSR. The assumption that this LSR is outside the range, should be monitored. The Slide Peak LSR should be inventoried for possible spotted owl sites.

The wetter habitat is limited and in remote portions of this LSR. There is potential to reduce fire risk from the dry forest types. This meets the long term strategy for sustaining population viability. There is also a need to protect existing home ranges, which may cause a higher risk to fire in the dry forest habitat maintained for the spotted owl. Overtime, it is expected that higher quality and more sustainable habitat will be restored to the LSR. The drier forests within the LSR will eventually be managed for other late-successional species. See Table ???, "Suitable Spotted Owl Habitat" for restoration opportunities.

c) Spotted Owl Dispersal And Connectivity

There has not been any evidence of spotted owls using this LSR. Spotted owl habitat connectivity within the LSR is limited in dry forest and dispersal habitats. Dispersal habitat includes 862 acres.

The Slide Peak LSR is isolated, not providing good connectivity between LSRs/MLSAs. A linkage may have existed, but disrupted in the 1970 fires and the 1994 wild fire.

Possible habitat for dispersal/connectivity corridors and patches within and between the LSR are primarily along riparian reserves and north aspects (see Forest Interior map and Suitable Spotted Owl Habitat Map). The function of dispersal/connectivity habitat for spotted owls depends on the amount and juxtaposition of late-successional, forest interior, and dispersal habitat. The Slide Peak LSR currently has 21% in successional advanced dry forest habitat. There is no forest interior habitat. The past wild fires and the natural vegetation and landscape accounts for much of the disruption to Forest Interior habitat.

Outside the LSR/MLSA network, dispersal habitat is found in all land allocations, and will be provided mainly in Riparian Reserves, in Unmapped LSRs in Matrix/AMA's, and in wilderness areas (NWFP 1994, ROD pg 19, C-3, C-10 to 11, C-39, C-45, D-9, App 3-4, pg. 240-241).

d) Restoration Opportunities And Potential Projects - Within LSR

- **Monitor Effectiveness**

1. Inventory suitable owl habitat in the Slide Peak LSR for possible spotted owl sites (currently only 10% has been inventoried).

- **Monitor Validity**

2. Validate vegetation modeling.
3. Validate spotted owl mapping, LSR acreage's.
4. Validate assumption that connectivity to/from Slide Peak LSR does not exist for spotted owls.
5. Validate the assumption that this LSR is outside the range of the Northern Spotted Owl.

- **Monitor Implementation**

6. During management proposals, use habitat quality/risk assessment analysis (Appendix 29) to help display best quality habitats and stands of highest risk to loss.

- **Protection**

7. Protection of LSR late successional habitat from fires.

- **Maintain**

8. Sustain late successional habitat inside LSR along riparian reserves of Granite Falls Creek, and tributaries.
9. Maintain dispersal/connectivity habitat within LSR (see unique habitats list).

- **Habitat Improvement**

10. Advance burned habitat towards late successional/fire climax, especially in riparian reserves.

- **Coordinate**

11. Coordinate fire prevention and habitat improvement/restoration with private landowners in Granite Falls Creek..

6. Aquatic

The Slide Peak LSR is located along the southwest shore of Lake Chelan. Lake Chelan is a large, approximately 50 mile long glacial carved lake tributary to the Columbia River. Reaching from the base of the North Cascades to almost the Columbia River, Lake Chelan is a very popular recreation area. While much of the lake shore and watershed is relatively pristine, accessible only by foot, boat, horseback or float plane, the native fish community has been greatly altered by introductions of exotic species.

a) Geomorphology

The Lake Chelan Basin has been heavily influenced by glaciation. Most of the basin lies within the Chelan and Sawtooth Highlands subsection with a portion of the northwestern, north and northeastern portions of the basin falling into the Wenatchee Mountains subsection. The landscape has been influenced by both alpine and continental glaciers. Lake Chelan occupies the trough of the Chelan Glacier. The lower end of Lake Chelan however marks the terminus of the Columbia Glacier (continental). Primary differences between the Wenatchee Highlands and the Chelan and Sawtooth Highlands is the presence of pronounced cirques, trough walls and trough valley bottoms and a maritime climate influence within the Wenatchee Highlands. The Chelan and Sawtooth Highlands have less pronounced cirques and valleys. The glaciers did not necessarily fill whole valleys and in some cases actually "backed" into or rode over the top of the landscape. Instead of the glaciers carving deep troughs fine material was often deposited in the valleys. The Chelan and Sawtooth subsection is heavily influenced by continental climatic conditions as opposed to the maritime climate predominate in the Wenatchee Highlands.

The primary geomorphic forces shaping the Chelan and Sawtooth subsection have been alpine glaciation and fluvial erosion on the margin of continental glaciation. The continental climate creates a dry climate, hot in summer, cold in winter. Pumice soils have little moisture holding capacity and are prone to ravel. Runoff is thus poorly regulated with flashy spring flow regimes. Late summer stream flows are usually low, many streams are intermittent. Seeps and springs are uncommon and where they do exist have low flows.

Fire and debris slides are primary disturbance processes. Much of the material delivered in the slides is the result of rapid surface flow and as such the primary material is sediment. Fire is a frequent visitor to the landscape. The lower landscapes have fire frequencies ranging from 10-20 years and naturally were usually low intensity. Fire frequencies in upper elevations ranged from 50 to 100 years and were usually high intensity fires. High intensity storms such as summer

thunderstorms can cause flashy run off which can trigger debris slides, stream channel scour, gully formation, and seasonal flooding. Such floods often occur after high intensity fires.

(1) Management Concerns Due to Geomorphology

Soil moisture stress, easily eroded soils and debris slides are management concerns. Management activities such as roading, timber harvest and cattle grazing that remove surface organic matter or concentrate water can accelerate surface erosion, gully formation and debris slide occurrence. Fire suppression may have created situations where the potential for high intensity fire has increased.

b) Lake Chelan

The Slide Peak LSR borders the southwestern shoreline of the lower portion of Lake Chelan. The native fish community has been greatly altered by man. Historically bull trout and westslope cutthroat trout and mountain whitefish (*Prosopium williamsoni*) were the salmonid species native to the Lake Chelan subbasin. Anadromous species were absent as Chelan Falls near the confluence of the Chelan River and the Columbia River was a natural passage barrier. Bull trout are now believed to be extirpated from the system and cutthroat populations have been diminished. Non-native kokanee salmon, rainbow trout, lake trout (*Salvelinus namaycush*) and chinook salmon have been introduced. The non-native species now form the basis of popular sport fisheries.

The lower end of Lake Chelan, near the LSR, has been heavily developed for homes and recreation around the town of Chelan. The Slide Ridge Shore Chelan and Baldy subwatersheds are included within the Slide Ridge LSR. This is a very dry landscape. One stream First Creek is intermittent within the National Forest and only flows perennially near the confluence with Lake Chelan. A small number of kokanee salmon spawn in the lower reaches of First Creek. Another stream, Granite Falls Creek is also intermittent.

c) Late Successional Habitat Management Concerns.

Management of late successional vegetation should be possible to implement with little risk to aquatic resources. Primary concerns are to not accelerate surface erosion or debris slide occurrence. Roads and timber harvest which concentrate surface water or remove vegetative cover protecting soils can accelerate erosion processes. Preventing changes to watershed processes and causing adverse effects from erosion downstream are important management considerations. Within this dry landscape, maintaining riparian vegetation for anchoring channel banks, filtering sediment and providing at least seasonal wildlife habitat will likely be an important consideration.

7. Noxious Weeds

Two species are known to occur within or nearby the Slide Peak LSR. *Centaurea diffusa* is known to occur within and just outside the LSR and prevention of spread into the LSR would of high priority. Also, *Linaria dalmatica* occurs near the LSR and prevention of spread of this species into the Slide Peak LSR would be of high priority. Current information is lacking regarding the presence of other noxious weed species within the Slide Peak LSR, therefore, the model can not be completed. Survey for species presence and extent should be completed in order to develop a noxious management plan for this LSR'S (refer to Harrod 1994).

8. Fire Management Plan

a) Overview

This plan is intended to provide guidance for the management of fire in the Slide Peak LSR. It will supplement the Fire Management Plan for the Late-Successional Reserve System and will be incorporated into the Fire Management Action Plan for the Wenatchee National Forest.

The Sustainability and Disturbance modules for the vegetation groups have been described in a separate portion of this chapter. The intent of this plan is to provide adequate protection of the reserve. Management practices will be initiated to provide for the protection of the late-successional associated species and associated unique habitats. These management actions are expected to include the role of fire disturbance as an important process in the reserve.

b) Wildfire Prevention Actions

The following actions are site specific for the Slide Peak LSR. They are intended to supplement the actions outlined in the Fire Prevention Plan, which is intended to be implemented on a Forest-wide basis:

1. Initiate campfire restrictions, as warranted, during periods of high fire danger.
2. Emphasize campfire restrictions, as warranted, during Mule Deer and other hunting seasons.
3. Implement road restrictions and closures, as warranted, during periods of high fire danger.
4. Emphasize cooperative fire prevention activities.
5. Utilize cooperative law enforcement agreements to emphasize the inspection of spark arrestor and exhaust systems.
6. Continue and improve fire prevention signing program on roads and trails included in, or adjacent to, the LSR.
7. Emphasize contact with special interest groups (e.g., Lake Chelan Boat Company, Lake Chelan Airways, ORV groups, and KOZI radio station).
8. Emphasize fire prevention education for hunters.
9. Emphasize fire prevention and wildfire risk awareness education for the public.
10. Seek opportunities to initiate hazard reduction actions around private lands (e.g., area along Lake Chelan between 25 Mile Creek and First Creek).
11. Initiate hazard reduction actions around developed and dispersed recreation sites, such as:
 - Slide Peak
 - Windy Camp
 - ETC...(Additional sites may be added if overlooked)
12. Initiate hazard reduction actions along FS Road 8410.

c) Fire Management Actions Intended to Keep Fire from Spreading into the LSR

The following methods are proposed to protect the LSR from fires originating outside LSR boundaries:

1. Maintain and manage existing fuel breaks.
2. Complete pre-attack planning process for LSR. Utilize natural fuel breaks when possible.

3. Maintain existing pre-attack facilities/agreements (e.g., water chances, helispots, fire camps, etc.): Seek opportunities for more.

d) Fire Detection

1. Staffing of Tyee Lookout and Chelan Ranger Station, supplemented with aerial detection after lightning episodes, will provide the primary detection resource for this LSR.
2. Aerial detection may be supplemented with emergency staffing at Chelan Butte.
3. The detection and report of fire from other resources (e.g., the Lake Chelan Boat Company and the Lake Chelan Airways).
4. Emphasize fire reporting procedures (e.g., with local residents, Forest users, and cooperators).

e) Wildfire Suppression

1. Pre-planned dispatch cards for initial attack will be prepared for the LSR area.
2. The Fire Situation Analysis or the Escaped Fire Situation Analysis process will be used to guide extended attack and large fire-suppression. Utilize pre-attack plans and materials.
3. Consideration for private land, late-successional habitat, and riparian reserves will take place during the development of fire suppression strategies and the implementation of fire suppression tactics.
4. Emphasize the protection of improvements (e.g., radio sites and historic/cultural sites).
5. Protect known threatened and endangered species habitat from wildfire (i.e., plant or animal).
6. Where appropriate, fire suppression actions will be implemented on an interagency basis.

f) Vegetation and Fuels Management

1. Manage for a mosaic of age classes and structural conditions across the landscape to support late-successional habitat.
2. Manage to sustain dry forest types.
3. Strategic fuel manipulation to reduce the size and intensity of fires within, and adjacent to, the LSR boundary (e.g., pruning, thinning, and fuel breaks). Provide a change in the continuity/arrangement of, at risk, vegetation/fuels. Emphasis to utilize existing fuel treatment areas, natural openings, roads, ridgetops, etc. Priority areas: Slide Ridge, FS Road 8410, Shady Pass, and First Creek.
4. Suggested management tools to sustain, enhance, or produce the conditions for late-successional habitat and provide for wildfire hazard reduction may include: pruning, commercial and pre-commercial thinning, wood gathering, mechanical treatments, and prescribed fire.

g) Prescribed Fire Opportunities

1. Recognize the use of prescribed fire as a management tool in this LSR and in areas adjacent to this LSR.
2. Priority outcomes throughout the LSR are to sustain, enhance, or produce the conditions for late-successional habitat and provide for wildfire hazard reduction.

3. Projects should be of scale/location to enhance landscape-level diversity tied to inherent disturbance regimes.
4. Projects should attempt to minimize the risk of future catastrophic wildfires (those outside the range of inherent disturbance regimes with respect to size and/or severity).

h) Summary

Fire prevention, fire detection, wildfire suppression, vegetation and fuels management, and prescribed fire are all appropriate, integral elements of the overall management of this LSR.

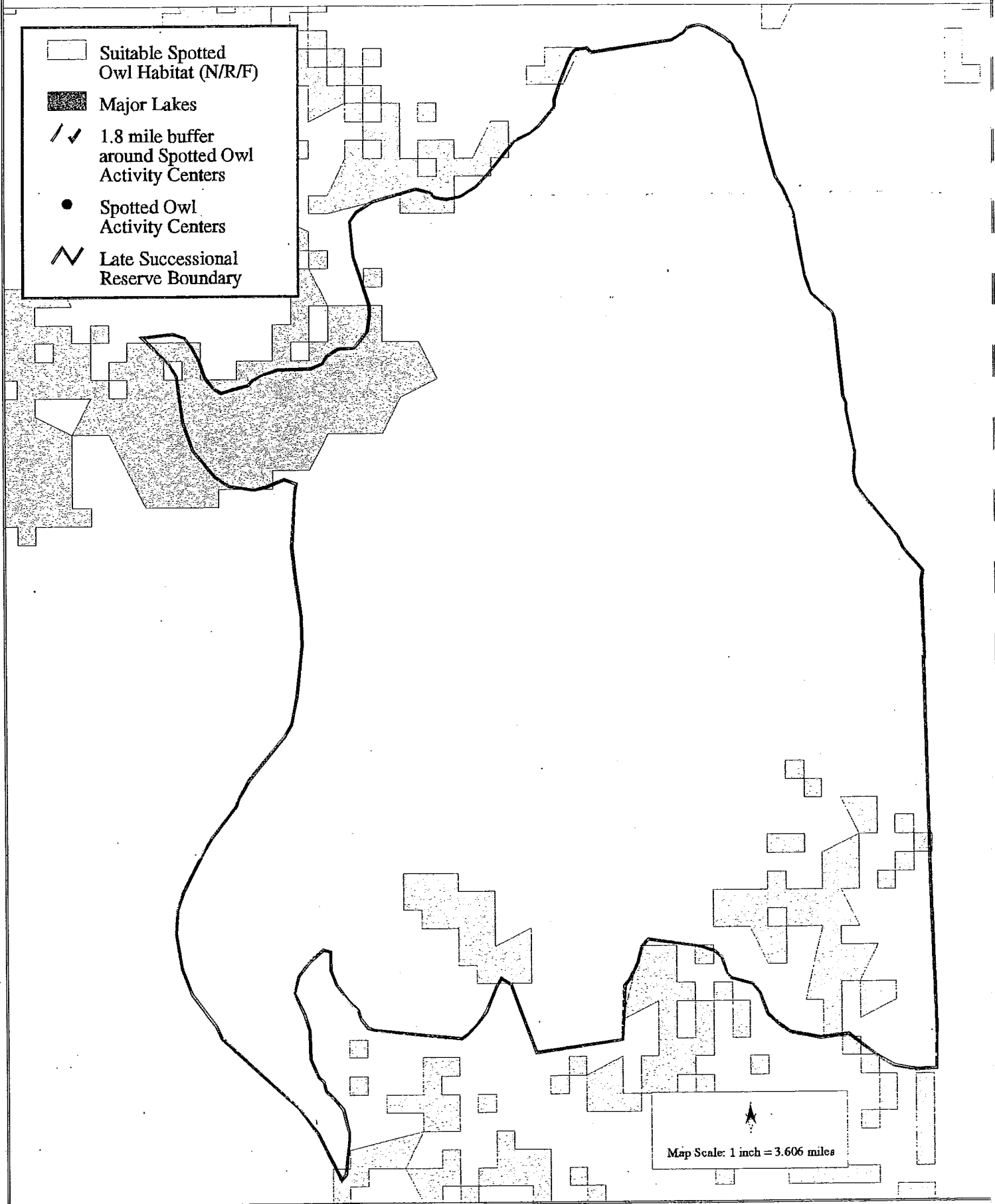
D. Restoration Opportunities and Potential Project Summary

Table VIII-11, Restoration Opportunities and Potential Projects, Slide Peak LSR


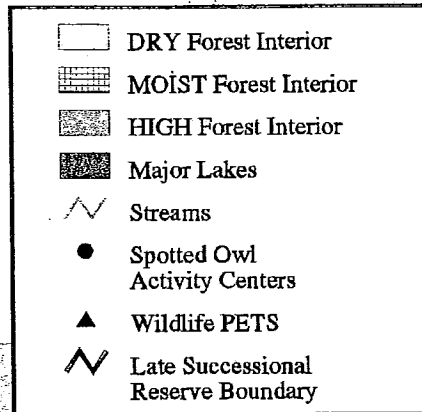
Analysis Module	Restoration Opportunity	Potential Projects	Schedule ¹
Forest-Wide Sustain-ability	1) Reduce dead fuel levels in successional advanced dry forest stands where they existed prior to the Tyee fire between Slide Peak and Shady Pass LSRs.	1) Commercial and non-commercial fuel treatments.	A
Forest-Wide Spotted owl	Not Applicable. (This LSR is not one of the 3 LSRs on the forest designated as a source population area.)	Not Applicable.	
Forest-Wide Connec-tivity	None Identified	None Identified	
Unique Habitats & Species	1) Maintain existing subalpine meadows.	1) Remove encroaching conifers from meadows.	C
	2) Retain whitebark pine acreage within the LSR.	2) Prescribed fire.	C
Connec-tivity Within the LSR	1) Promote the development of fire climax stands within the dry forest vegetation group.	1) Thin from below favoring ponderosa pine. Use prescribed fire where current fuel loading permit the attainment of objectives.	A
Distur-bance	1) Reduce dead fuel levels within the LSR in successional advanced dry forest stands where they existed prior to the Tyee fire.	1) Commercial and non-commercial fuel treatments.	A

Analysis Module	Restoration Opportunity	Potential Projects	Schedule¹
Spotted Owl	1) Accelerate the development of suitable spotted owl habitat.	1) Utilize Silvicultural activities that accelerate the development of Spotted owl habitat including reforestation with desirable species and pre-commercial thinning.	A
	2) Obtain information on spotted owl locations.	2) Survey areas to 1994 spotted owl protocol.	B
Aquatic	1) See late successional habitat management implications in aquatic section.	1) Coordinate projects with Entiat and Twenty-five Mile/First Creek Watershed Assessments.	A
Noxious Weed	1) Limit the extent and spread of <i>centaurea diffusa</i> in twenty five mile creek area.	1) Consider treatments such as hand pulling and herbicides to limit extent and spread.	A
	2) Prevent invasion of <i>Linaria dalmatica</i> from nearby areas.	2) Use combination of treatments that prevent spread of this weed into Slide Peak.	B
	3) Increase knowledge regarding noxious weed presence in Slide Peak LSR.	3) Survey LSR for presence of noxious weeds.	C
Fire Plan	1) Protect LS values from loss due to wildfire	1) See fire plan for specific actions	

¹ Implementation Schedule; (A) = within 1 year; (B) = within 3 years; (C) = within 5 years

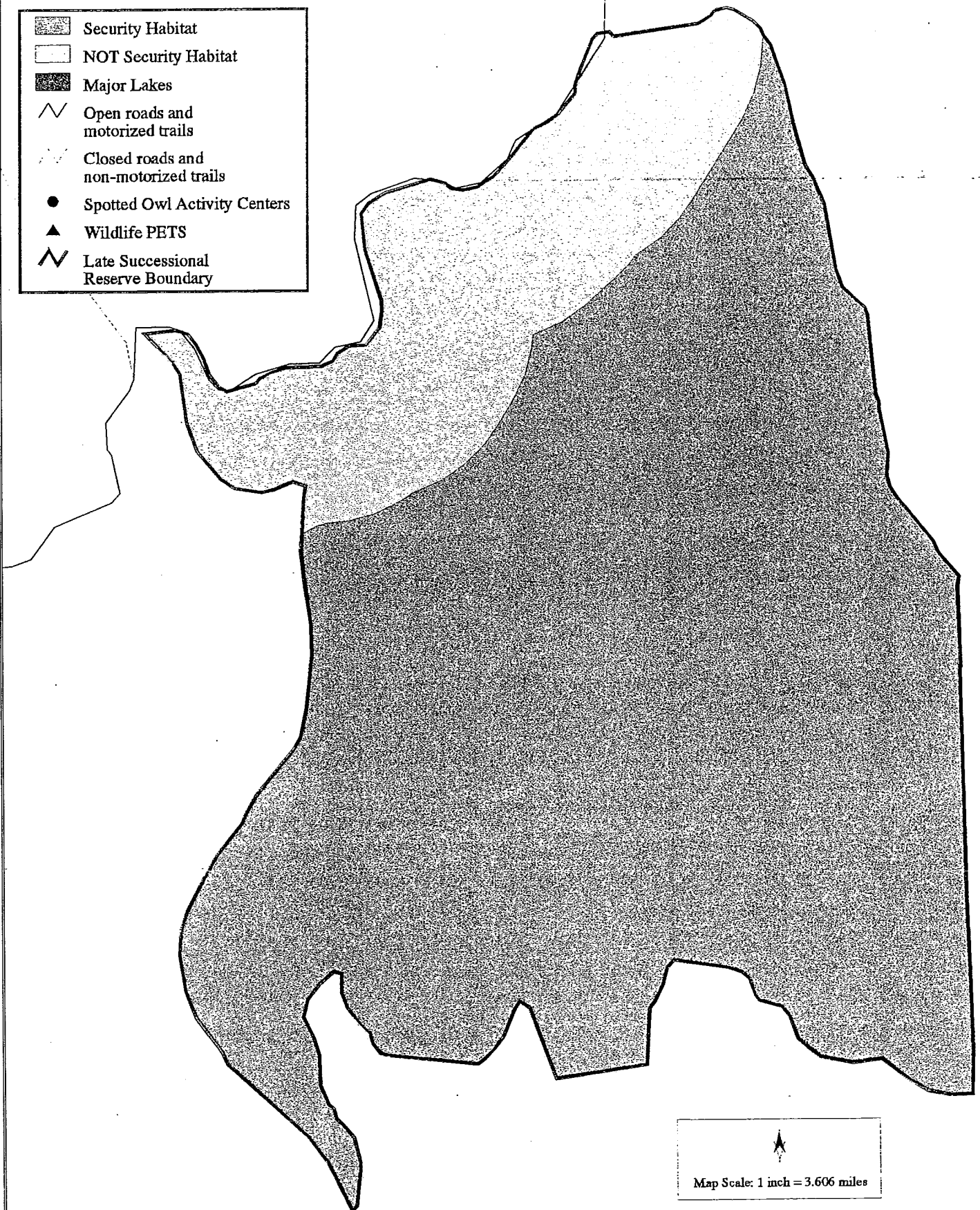
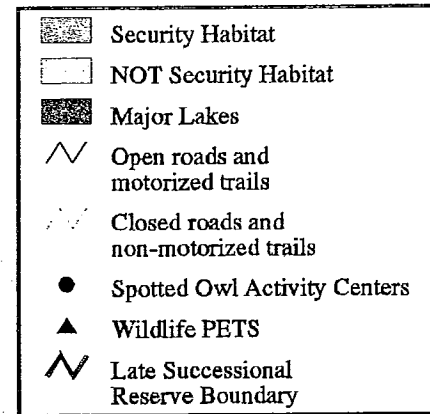
*Slide Peak Late Successional Reserve****SUITABLE SPOTTED OWL HABITAT***

Slide Peak Late Successional Reserve
FOREST INTERIOR

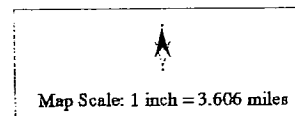
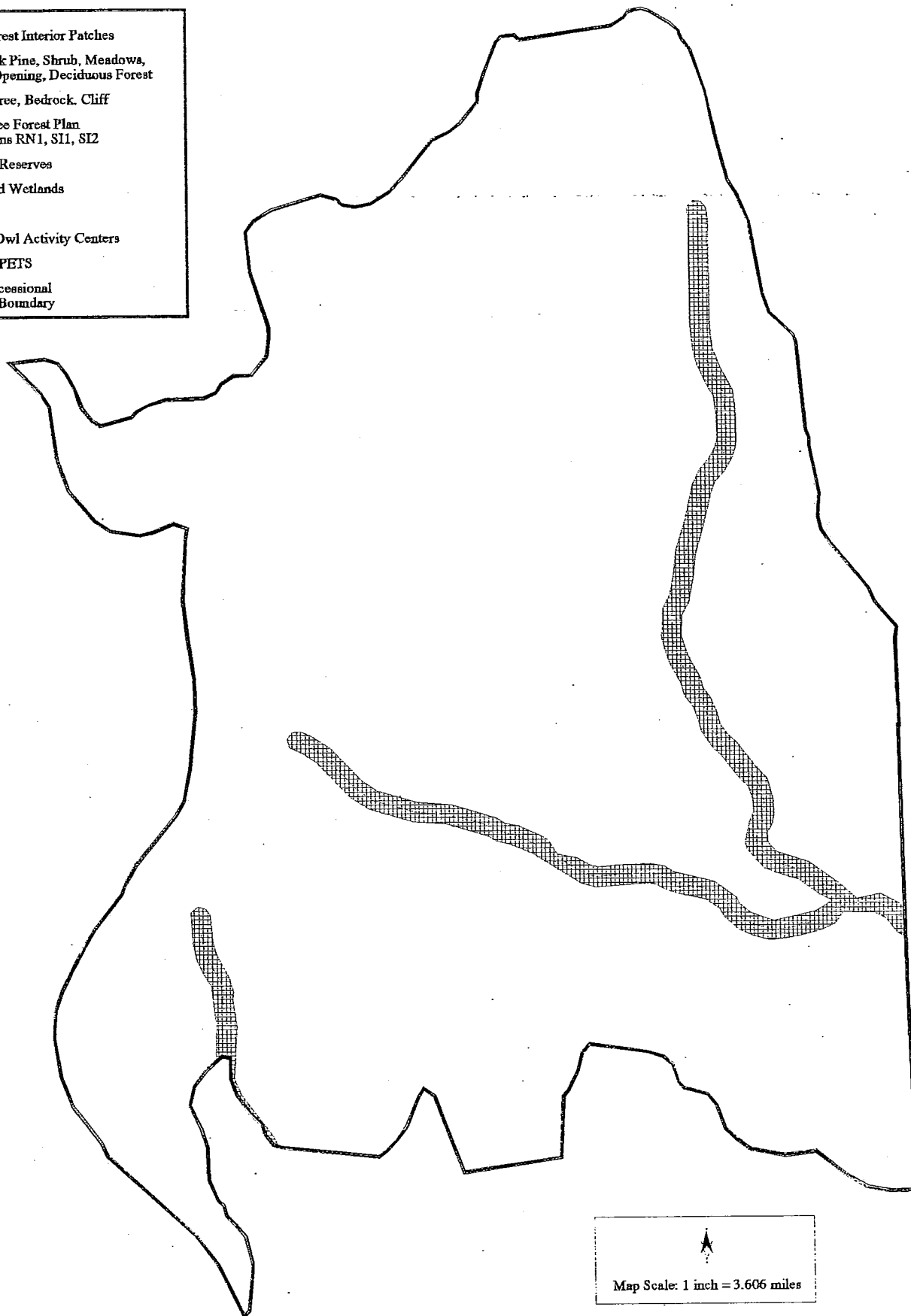
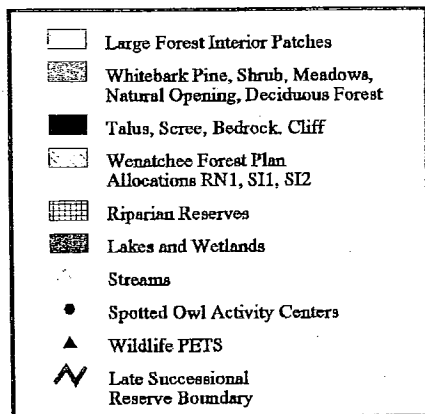


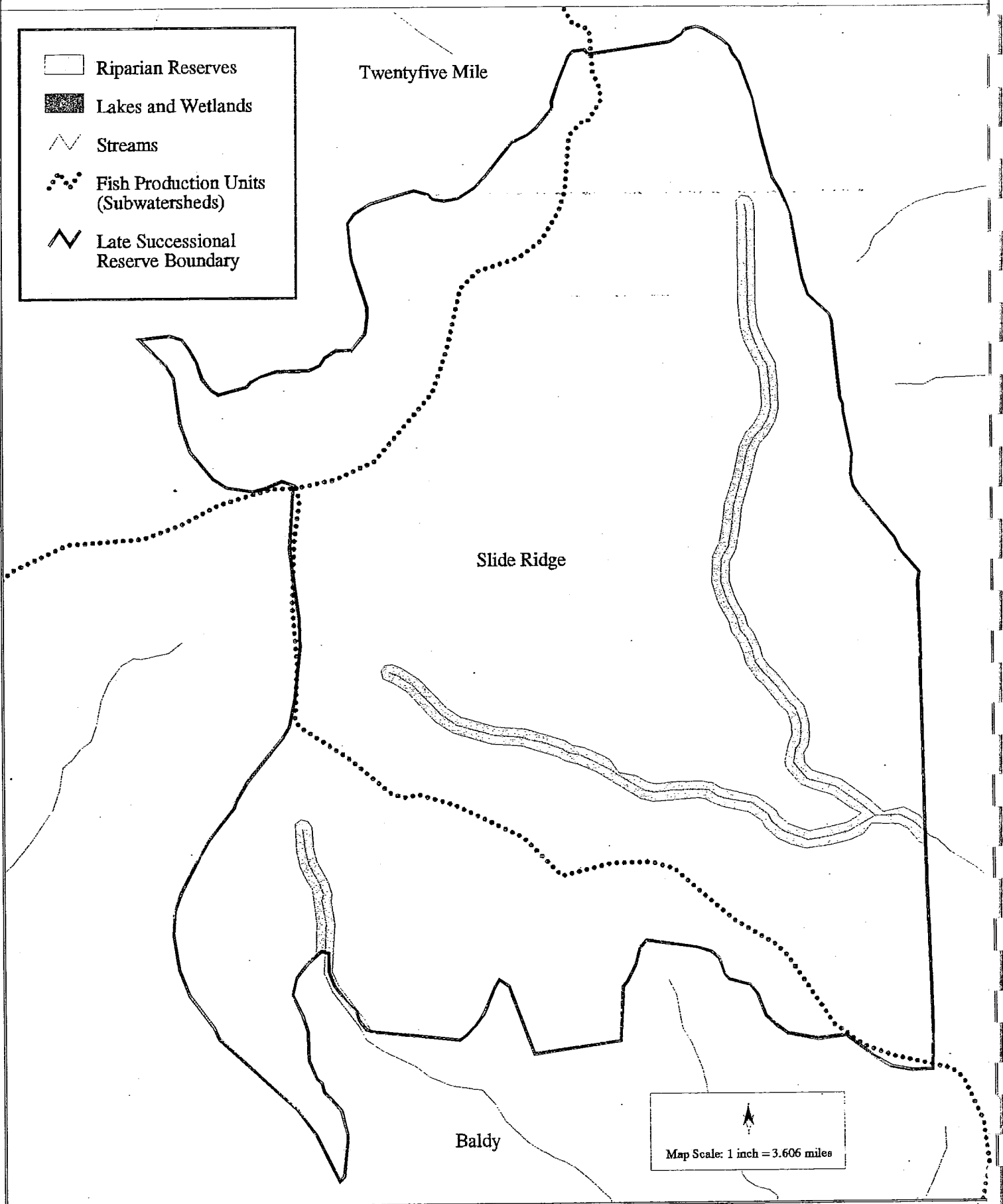
Map Scale: 1 inch = 3.606 miles

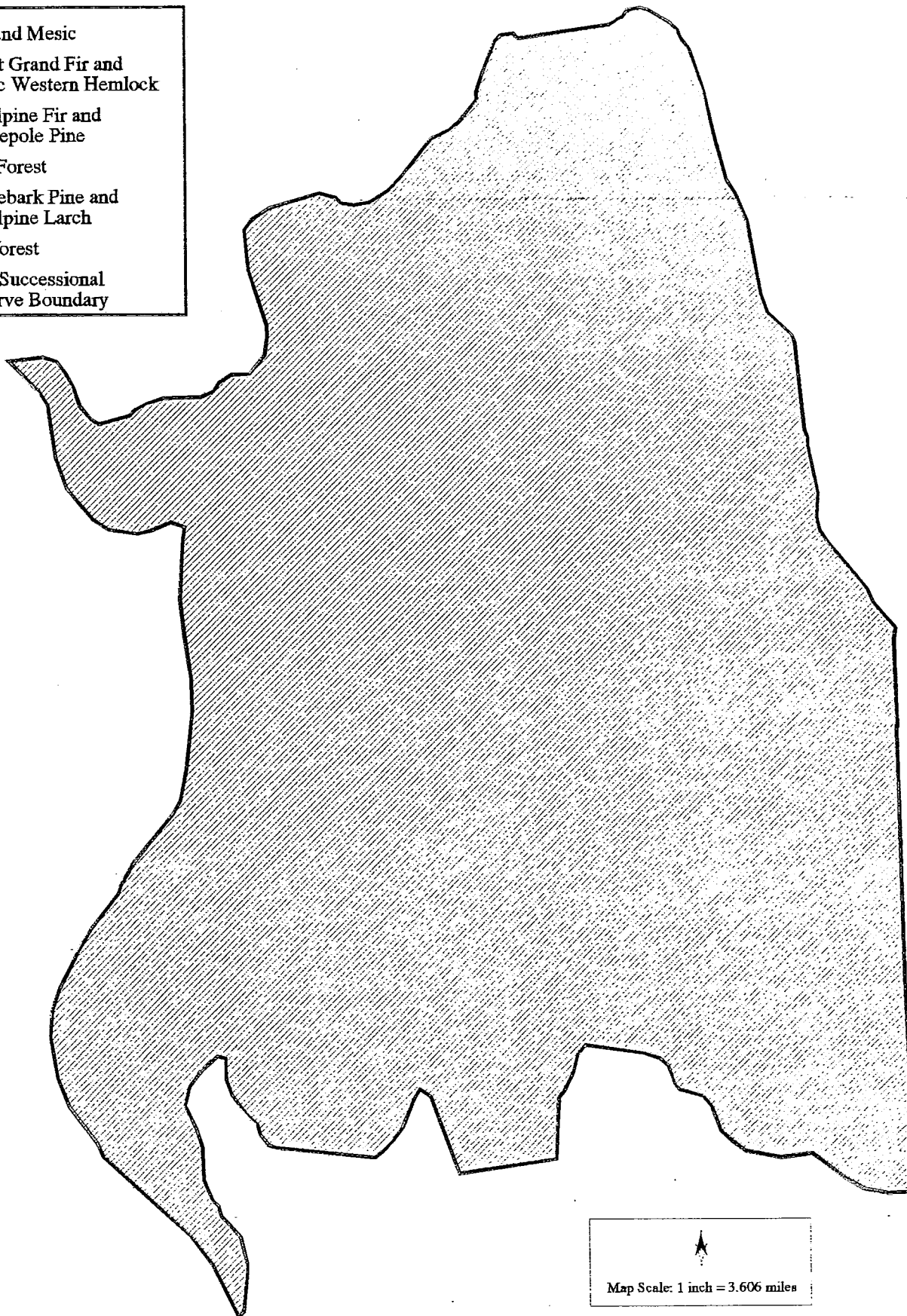
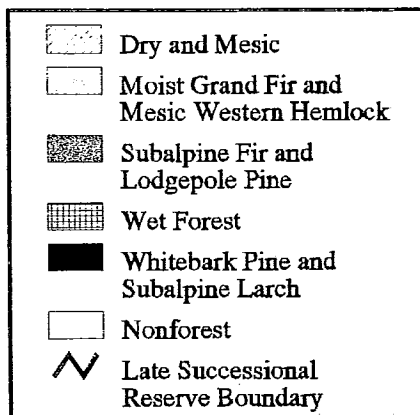
Slide Peak Late Successional Reserve
SECURITY HABITAT



Map Scale: 1 inch = 3.606 miles

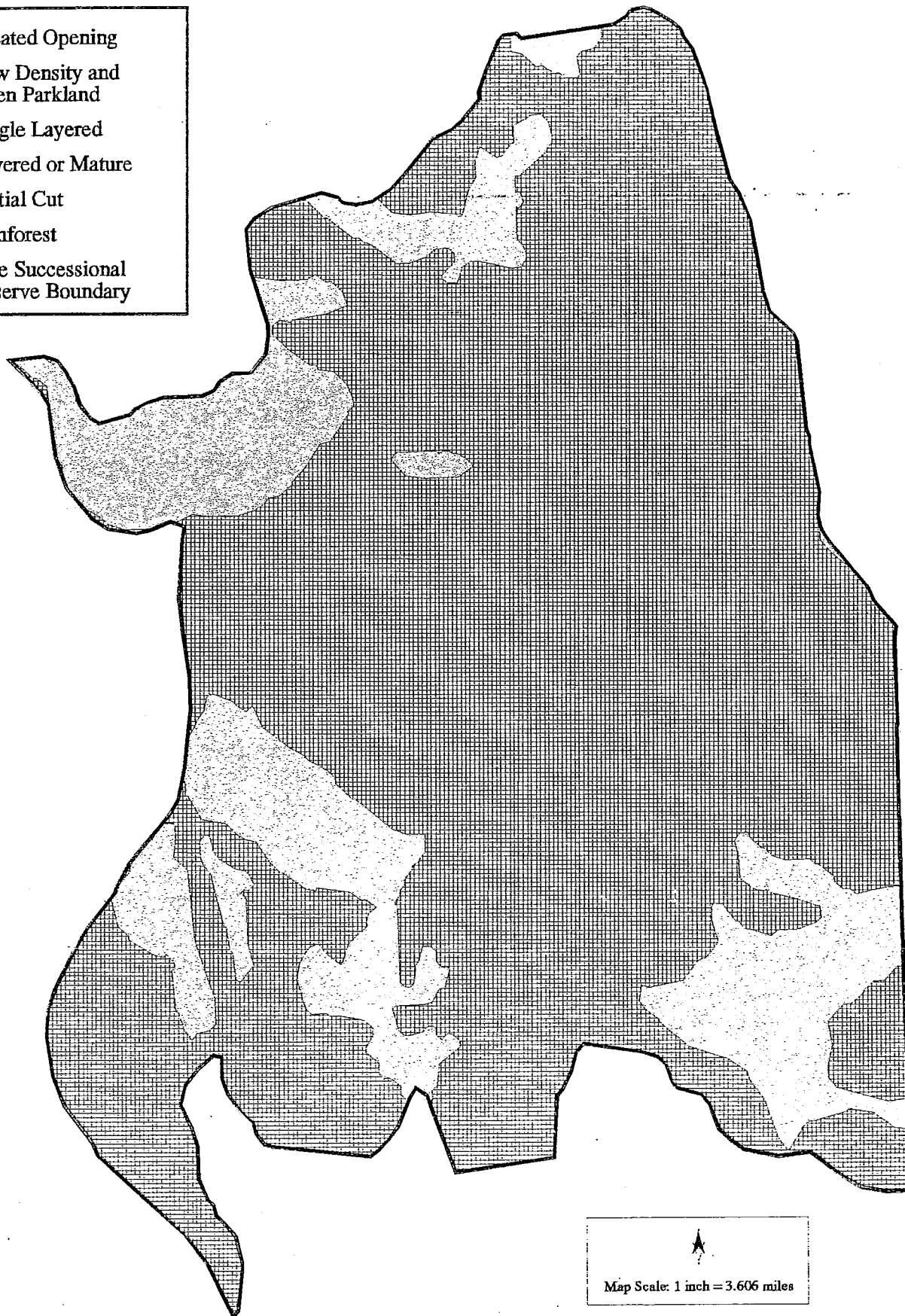
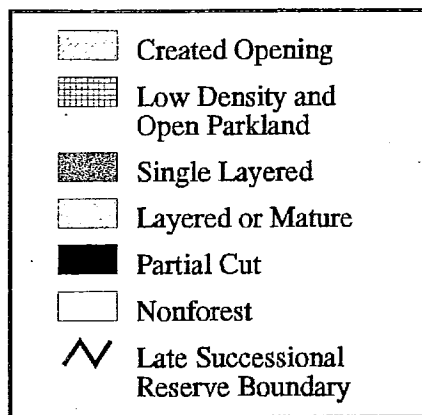
*Slide Peak Late Successional Reserve***UNIQUE HABITATS**

*Slide Peak Late Successional Reserve****FISH PRODUCTION UNITS (SUBWATERSHEDS)***

*Slide Peak Late Successional Reserve***VEGETATION SERIES**

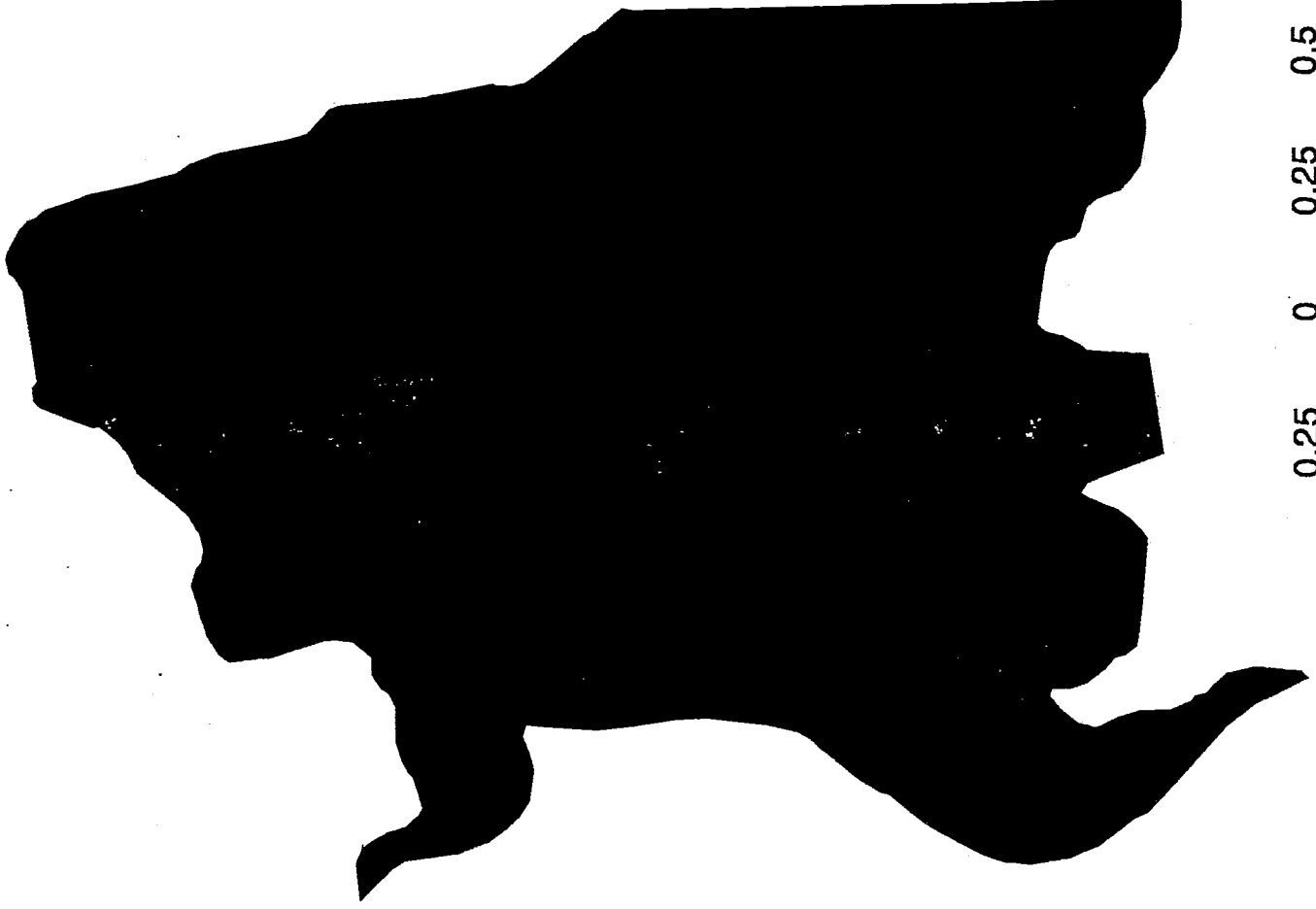
Map Scale: 1 inch = 3.606 miles

Slide Peak Late Successional Reserve
VEGETATION STRUCTURE

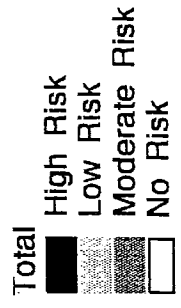


Map Scale: 1 inch = 3.606 miles

Slide Peak LSR



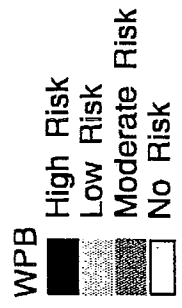
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Slide Peak LSR



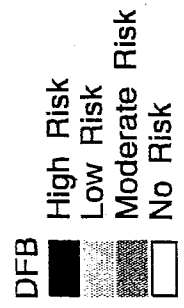
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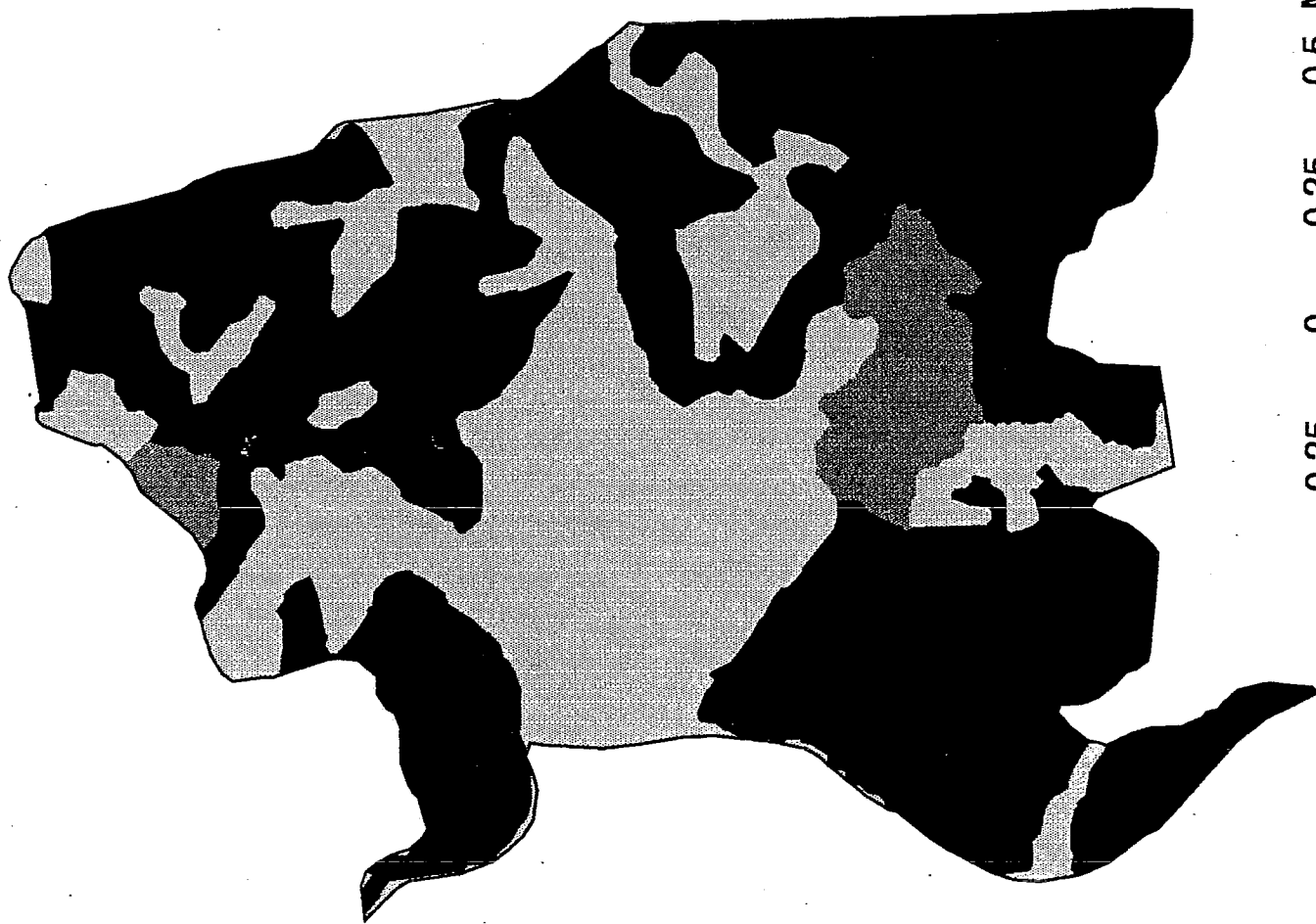
Slide Peak LSR



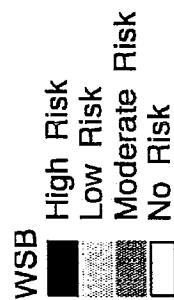
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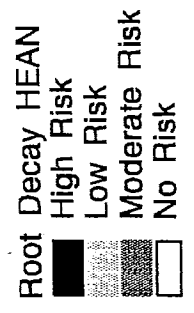
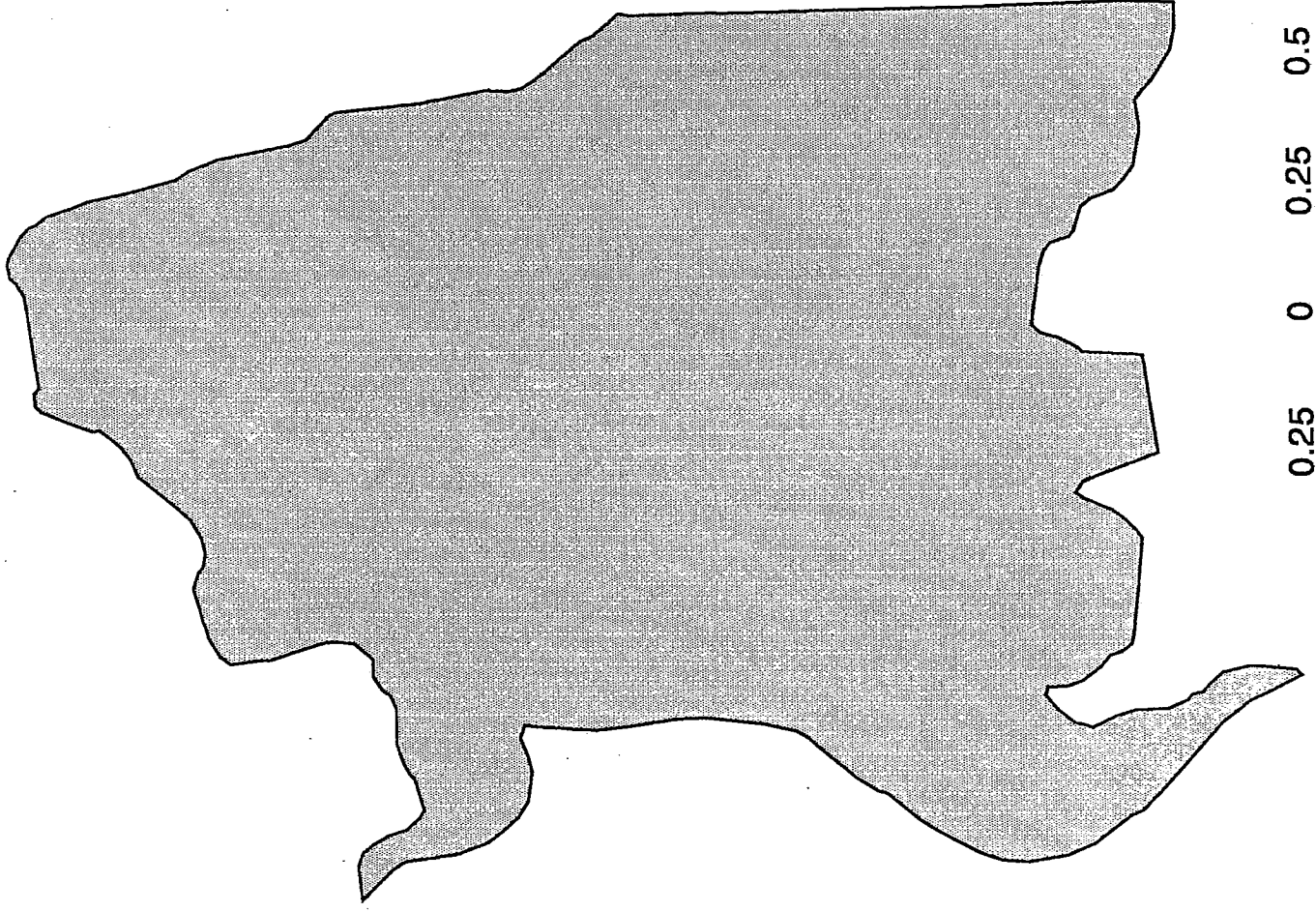
Slide Peak LSR



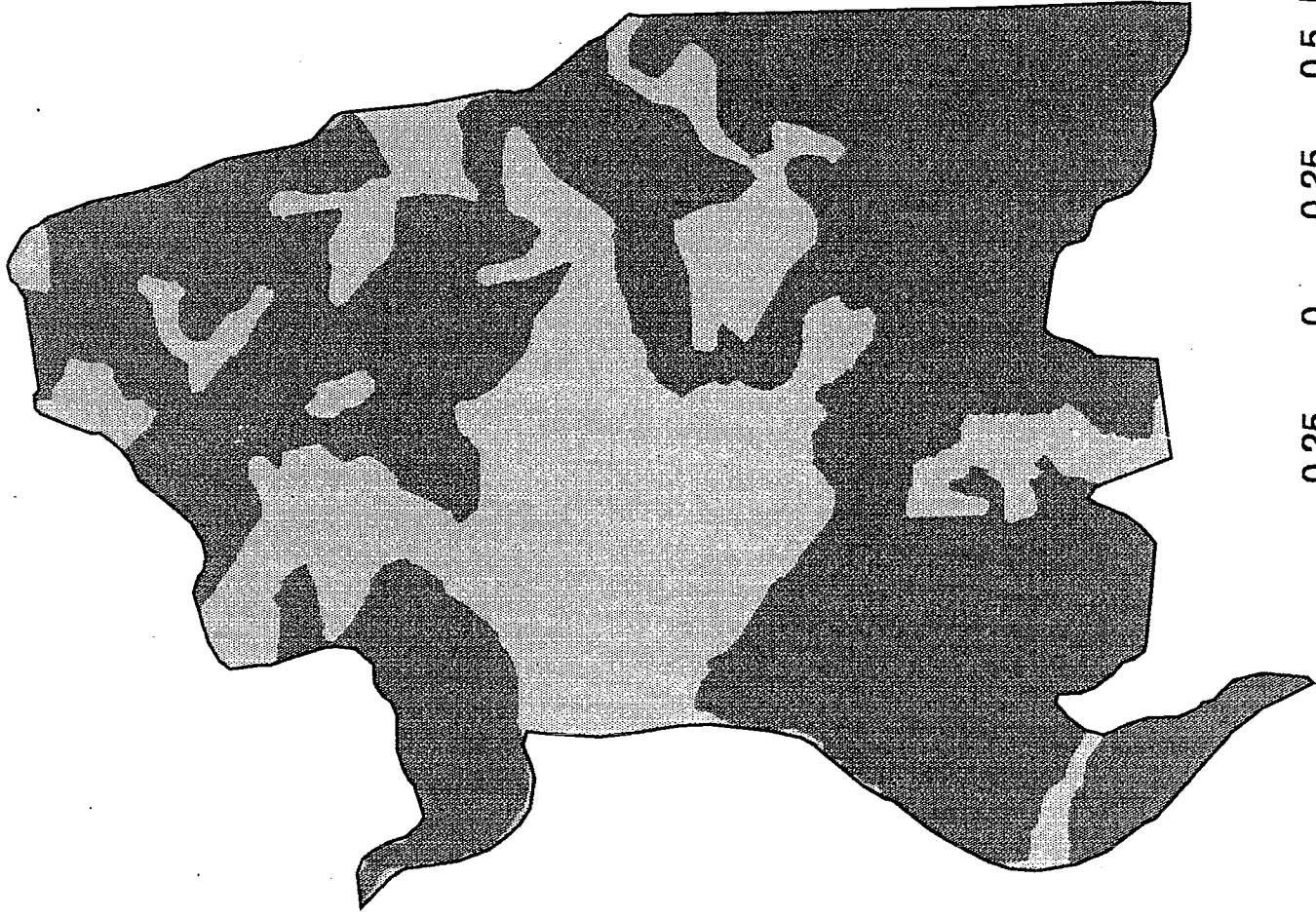
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Slide Peak LSR



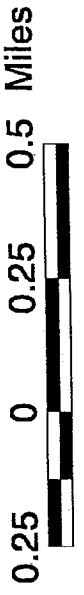
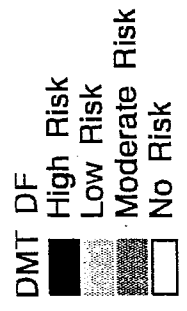
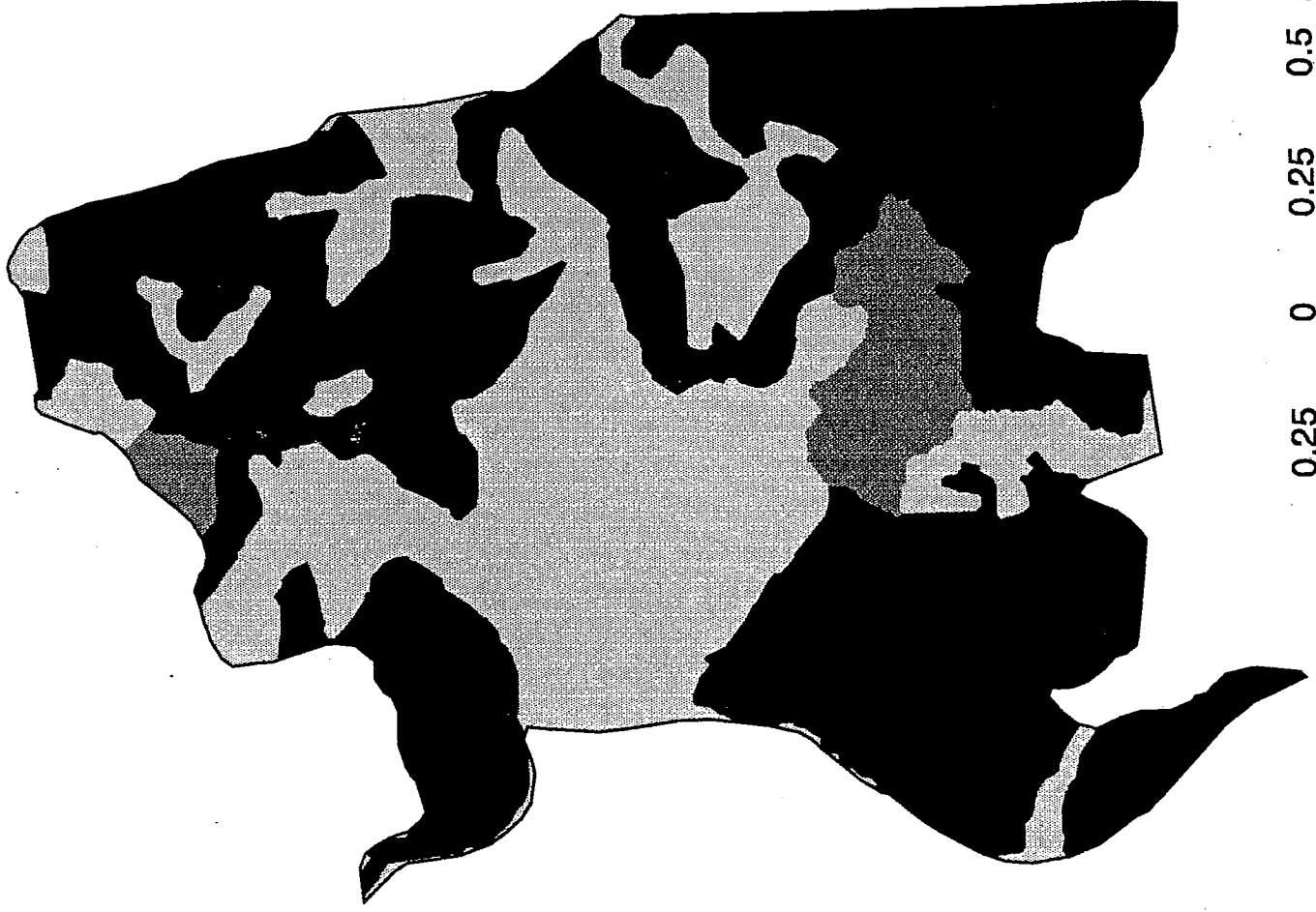
Slide Peak LSR



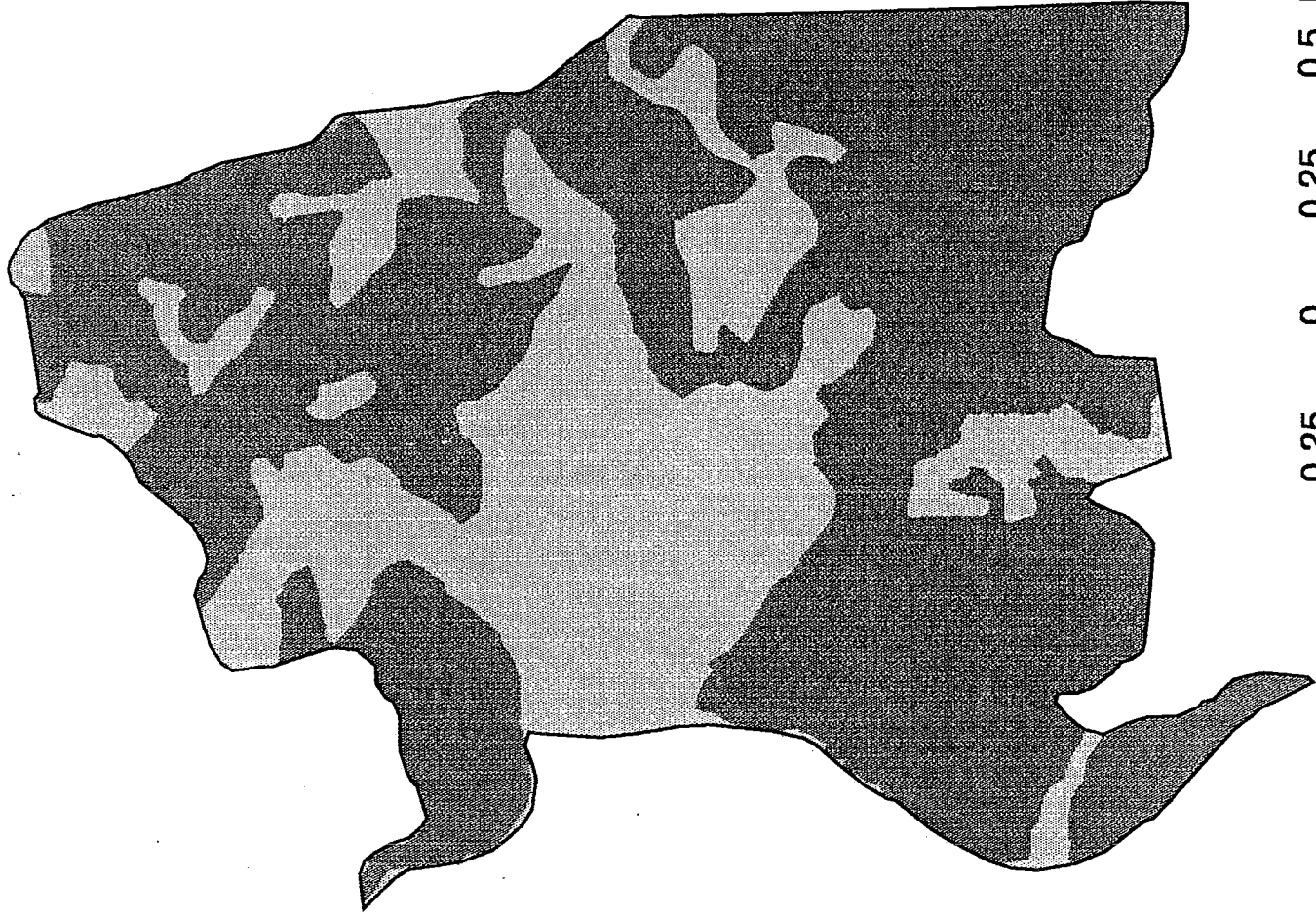
0.25 0 0.25 0.5 Miles

Root Decay AROS
High Risk
Low Risk
Moderate Risk
No Risk

Slide Peak LSR



Slide Peak LSR

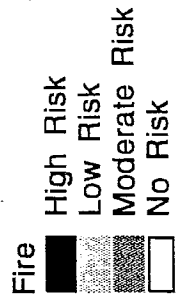


0.25 0 0.25 0.5 Miles



DMT PP
High Risk
Low Risk
Moderate Risk
No Risk

Slide Peak LSR



IX. Swauk LSR

A. General Description of LSR

1. Vegetation

This section describes the current condition of vegetation groups (see Vegetative Landscape section above) within the Swauk LSR. Data was derived by a combination of aerial photo interpretation (only in the northern portion, north of the Cle Elum and Leavenworth Ranger District Boundary) and modeling (see Vegetative Landscape section above). It should be noted that site specific information regarding vegetation structure and distribution will need to be updated as restoration projects are initiated. The idea would be to use the vegetation layer derived for this analysis as a starting point only.

a) Description by Vegetative Group

Information is provided below regarding each vegetation group, refer to the "LSR Vegetation Photo Mapping Key" in the Appendix for definitions of structural classes.

(1) Dry Forest Group and Grassland/Shrubland

Fifty-four percent (58,065 acres) of the Swauk LSR consists of the dry forest group (Appendix 4). Within this group, 56% (32,845 acres) is mapped as high density and only 9% mapped created openings. The actual amount of created openings in this group is probably even less because of the inability of the modeling effort (in the southern portion) to distinguish between created (fire or human caused) openings in forest environments and inherent openings (scattered forest, grassland/shrubland).

Fairly detailed vegetation data can be found in the Mission Creek Watershed Assessment which covers most of the northern portion of the LSR and in the Swauk and Table Mountain Watershed Assessments for the south end of the LSR. Little information is currently available for the southern portion, but some generalizations can be made. Within this forest group, the ponderosa pine series is limited within the LSR. In some locations, ponderosa pine exists as the sole overstory dominate, but more often is co-dominant with Douglas-fir and in some locations, grand fir. In the driest associations, shrub understory composition is dominated almost exclusively by *Purshia tridentata* (Mission Creek Watershed Assessment, on file at the Leavenworth RD). Shrubs such as *Artemisia tridentata*, *Berberis aquafolium*, *Arctostaphylos uva-ursi*, and *Phlox speciosa* may also occur as subordinate members of these communities. Grasses include *Agropyron spicatum*, *Calamagrostis rubescens*, and *Carex geyeri*. Forbs composition is represented by *Balsamorhiza sagittata*, *Achillea millefolium*, *Lupinus serecius*, *L. latifolius* and *Lomatium* spp. (Mission Creek Watershed Assessment, on file at the Leavenworth RD).

(2) Mesic Sites-

Mesic sites were only mapped within the northern portion of the Swauk LSR because of the limitations of the modeling process used in the southern portion. In general, mesic sites occur on steep (>40% slope), northerly aspects, riparian areas, or moist benches within the dry forest group (see Vegetative Landscape section). In the northern portion of the LSR, 1,495 acres of mesic sites have been identified. It will be important that these sites in the southern portion are identified through restoration projects since suitable spotted owl habitat may need to be